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THE

CANADIAN AGRICULTURIST,

IV

A MONTHLY JOURNAL

DEVOTED TO

AGRICULTURE, HORTICULTURE,

SCIENCE,

AND

DOMESTIC AND RURAL ECONOMY.

Illustrated with Engravings.

EDITED BY

GEORGE BUCKLAND AND WILLIAM Mc DOUGALL.

VOL. II.—1850.

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TORONTO, CANADA WEST,

WILLIAM Mc DOUGALL, PROPRIETOR.

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MDCCCL.

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CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—ECCLES. v. 9.

GEORGE BUCKLAND, WILLIAM McDOUGALL, } EDITORS AND PROPRIETORS.

VOL. II. TORONTO, JANUARY, 1850. No. 1.

THE AGRICULTURIST.

In the last number of our paper for the year 1849, we stated some of the difficulties under which it had laboured, and referred to some of the changes we intended to make in the present volume. It will be seen that we have discarded advertisements, as we found they yielded no profit, at the prices usually charged, and added considerably to the cost of the publication, in the item of paper, as well as printing. By setting the type of articles, whether original or otherwise, close, i. e., without leads between the lines, (the use of which produces an open appearance, and causes a given article to occupy a much greater space than without them,) each number will contain as much matter, within a mere trifle, as one of the last volume. If the Agricultural Association agree to our proposal to publish their Reports in extra pages of the *Agriculturist*, the present volume will contain *more* matter than the last. And yet we offer it to societies and clubs ordering over twenty-five copies for *half-a-dollar* a copy! We have added a new feature to this volume, in the illustration by woodcuts, of cottages, plans of school houses, and important principles and questions in Natural Philosophy. The explanations which will be given on the latter subject especially, we consider highly desirable, and we have no doubt they will prove interesting and instructive to hundreds, nay thousands of our youthful readers, who may not have access to the same kind of information in books of science. We refer to our remarks on this subject in another place. We direct the attention of readers and our cotemporaries to the Prospectus published on the last page. Those of our newspaper brethren who will copy this prospectus and make such remarks upon our work as they may think it deserves, will greatly oblige us, and no doubt help us to enlarge the sphere of, we trust, our useful labours. We are happy to say that several orders from societies and clubs that did not take the paper last year, have already come in. From the reduction of price to societies, and the plan we have adopted of giving prizes, we anticipate a large increase to our circulation. Let the friends of agricultural improvement extend to us a reasonable support, of *the right kind*, and we promise them an interesting and a useful paper.

Neatly bound volumes of the *Agriculturist* for 1849, may be had for 6s. 3d. Societies ordering over a dozen copies, for premiums, will be supplied at 5s. per copy. Unbound sets will be mailed to the address of any person remitting 3s. 9d., free of postage.

SIGNS OF RAIN.—The air, when dry, I believe, refracts more red, or heat-making rays; and as dry air is not perfectly transparent, they are again reflected in the horizon. I have generally observed a coppery or yellow sunset to foretell rain, but as an indication of wet weather approaching, nothing is more certain than a halo round the moon, which is produced by the precipitated water; and the larger the circle, the nearer the clouds, and consequently the more ready to fall.—*S. H. Davy.*

SPIRIT OF THE AGRICULTURAL PRESS.

We propose condensing into as small a space as possible, some of the more useful and interesting articles or facts that we may meet with in our Agricultural exchanges. As our limits will not admit of lengthy articles, we think a few columns monthly, of carefully abridged matter, relative to the state and progress of Agriculture in various parts of the world, will be well received by our readers.

Destruction of the Wire Worm.—Mr. Little in a recent number of the "Illustrated London News," observes that he had tried the application of the most powerful poisons to the wire worm, such as preparations of Corrosive Sublimate and Arsenic, without destroying its vitality. Even Vitriol and Aquafortis did not consume the worm till after a considerable time. He next tried liquid ammonia, (*hartshorn*), and the result is said to have been marvellous. The worms were shrivelled up in an instant, and reduced almost to a state of cinder. He afterwards took a portion of the earth containing the worm, mixing it with a small quantity of lime, adding some powdered sal-ammoniac; the result was the decomposition of the latter by the lime, and the liberation of ammoniacal gas, which had precisely the effect of the liquid ammonia. This experiment is worth pursuing on a larger scale. Ammonia, it should be remembered, constitutes a most valuable portion of manure.

Soot.—The effects of this manure on growing crops, as a top dressing, are immediate, owing to the large quantity of sulphate of ammonia which it contains. It promotes in a high degree the growth of grass, and the second cut of clover is also greatly increased thereby. Soot promotes the growth of cabbages and other herbaceous plants in a remarkable manner, and is much esteemed for garden purposes. It has been found advantageous as a top dressing for wheat, but care should be taken not to apply it in large quantities, or it may be injurious by burning the plants.—*Transactions of the Highland Society.*

Offal of Shambles.—Blood and other animal matter is too powerful a manure to apply by itself, and when unmixed, its effects are more *immediate* than *lasting*. It is a good substance to mix with dried peat moss, or with farm-yard manure. It is said that when animal offal has been much used, large numbers of maggots have been generated, that have been particularly injurious to the quality of turnips and other root crops.—*Ibid.*

Nightsoil.—This is a most powerful fertilizer, and in large cities manufactories have been erected for disinfecting and preparing it for the purposes of the farmer. It may be made into a compost with about four times its quantity of coal-ashes, with saw dust, peat, or some such slowly decomposable vegetable matter, to prevent the ammonia from flying off during the decomposition. Nightsoil appears better adapted to clayey than light soils. It contains phosphate of lime, and most other essential materials for the growth of crops.—*Ibid.*

Cost of Drainage.—The following table is taken from the *Scotch Agricultural Journal.* The length of draining-tiles is calculated at 15 inches, the cost at 18*s.* per thousand, the soles at 6*s.* per thousand, and the depth of drains at 2 feet 3 inches.

The expense of draining is very fluctuating, as it depends so much on the rate of wages, the nature of the soil—or rather the subsoil—and the depth required. Few drains should be made less than three feet deep, and pipes are a cheaper material than eliptical tiles, and they are thought to be equally efficient and durable.

Feet apart.	No. of Tiles pr. acre	No. of Soles pr. acre.	Cost of Tiles pr. acre.	Cost of Soles pr. acre.	Cost of cutting and filling in	Total.
			£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
10	3485	3485	3 3 0	2 2 0	3 0 6	8 5 6
15	2323	2323	2 0 0	1 6 8	2 0 3	5 6 11
18	1936	1936	1 15 9	1 3 10	1 13 6	4 13 1
20	1742	1742	1 11 3	1 2 2	1 10 3	4 3 8
22	1584	1584	1 8 6	0 19 0	1 7 6	3 15 0
24	1452	1452	1 6 0	0 17 4	1 5 0	3 8 4
26	1339	1339	1 4 3	0 16 2	1 2 9	3 3 2
28	1244	1244	1 2 6	0 15 0	1 1 6	2 19 0
30	1161	1161	1 1 0	0 14 0	1 0 0	2 13 0

Signs of health in Sheep.—As sheep are liable to various diseases, much care on the part of purchasers becomes necessary, especially when they are intended for breeding stock. The usual appearances of soundness and vigour of constitution, are a lively briskness of temper, a brilliant clearness of the eye, ruddy colour on the inside of the eyelids, nostrils and gums, fastness in the teeth, a sweet, fragrant breath, dryness of the nose and eyes, the breath easy and regular, coolness in the feet, the various parts of the body properly formed, fleece firmly attached to the skin and unbroken, and the skin exhibiting a florid, red, appearance.

American Provisions in England.—In the December number of the *American Agriculturist*, there is an interesting article under this head. The last season, it appears, has been unprofitable to exporters, although a large business was done. Much of the loss is attributable to a want of proper attention in curing and packing, and this neglect is said to have created a general prejudice in the British markets against American provisions. The importation of bacon into London alone, had risen from 14,161 cwts. in 1847, to 140,096 cwts. in the first nine months of 1849; the largeness of the amount, and inferiority of the quality more particularly, had occasioned a serious declension in prices. Ice-cured singed sides, shipped during the summer months, did not answer, the meat having sustained great damage during transit. All bacon is best packed in well-seasoned boxes, containing about 3 cwt. each. *Hams* are objected to on account of over-saltness, which has occasioned a serious decline in price. They should be, when dried, from 10 lbs. to 14 lbs. each, in casks from 5 to 6 cwt. Salted hams from 15 lbs. to 25 lbs. *Mess Pork* had been a losing article, owing in great measure to defective curing. This gives it a dirty brown colour, instead of a

bright cherry-red, which all skilfully packed meat possesses. Irish and Hamburg pork, being well cured, consequently obtained much higher rates. *Beef* had turned out better. Refined lard, in white kegs, does not answer. The English refiners turn out a neater and firmer article, which is not exposed, like the American, to fermentation on the passage. The importation of *cheese* had been heavy, and the make of English very large, prices must therefore rule low. From 34s. to 40s. per cwt. is expected to be the general range.

Milk Weed.—A correspondent of the *Boston Cultivator* recommends rather a novel mode of destroying this prolific weed. As hogs are well known to take a deep interest in most kinds of roots, especially when their noses are free from rings, it is suggested that they should be employed in sufficient numbers during early spring in all such fields as may require the benefit of their services. This is no new light after all, as the swinish multitude have been wont to exercise their intuitive propensities from time immemorial, to the no small annoyance often of the farmer. We should prefer deep and clean cultivation to the calling in the assistance of the grunters.

Quality of Milk.—We have often remarked that it is the quality of milk, rather than the quantity, which gives value to the dairy cow. Great astonishment is sometimes produced by statements of the large quantity of milk yielded daily, by some cows. But such statements are of little consequence. The most remarkable cows for the production of butter, have given but medium quantities of milk. For instance, the celebrated Sussex or Cramp cow, which for several years made an average of 600 pounds of butter a year, gave, at the most, but twenty quarts per day; and the Oaks cow, which made 480 pounds of butter in a year, gave but sixteen to eighteen quarts per day. John Hulburt, of Chemung, N. Y., states that he has found, by churning the milk separately, that *one* of his *best* cows will make as much butter as *three* of his *poorest*—all giving an equal quantity of milk. He states, also, that 100 pounds of milk, drawn from his cows which gave the richest milk, will make one pound more butter than 100 pounds drawn from the whole herd; and he adds, that there is more difference in the quality than in the quantity. His advice in conclusion is, that all dairymen look well to the quality of milk their cows give.—*Albany Cultivator.*

Black Sea Wheat.—In Vermont, this variety of wheat is sown any time between the 10th of March and the 10th of June. It yields, in good soil, from 30 to 40 bushels per acre, and weighs 64 lbs. a bushel. Mr. Wainwright, of Middlebnry, in 1846, raised, upon 30 acres, as many bushels per acre of the above wheat. This was not done by the "skinning process," but by a liberal application of ashes and stable manure, and thorough preparation of the ground.—*Albany Cultivator.*

Broom Corn.—The *Ohio Statesman* says that C. Eaton and Brothers planted, last season, 700 acres with broom corn, 450 of which were rented at $5 per acre. Much of the land had been subjected to this crop for five years in succession, and the produce sent chiefly to New York.

We are glad to find that attention is beginning to be paid to the cultivation of this corn and the making of brooms in Canada; and, from all we can learn, the business is profitable. Surely we have soil and ingenuity enough to grow the materials for and make our own brooms.

Starch from Indian Corn.—Large quantities of starch are now made from this grain, in Ohio. An establishment, near Columbus, consumes 20,000 bushels of corn annually for this purpose. The offal of the grain is given to hogs, 500 to 600 head being annually fattened therewith. The quality of the starch is said to be superior to that of wheat, and commands a higher price in New York.

Winter care of Sheep.—"Shelter and feed well, feed well and shelter. If you do not shelter your sheep, you ought not to wear a coat." To this excellent and seasonable advice of our contemporary *The Wool Grower*, we would say to farmers, in these northern regions particularly, extend the same friendly and profitable care to *all* your domestic animals. Attention of this sort has a high economical value. But in studying warmth and shelter, don't be forgetful of proper *ventilation*. Remember it is a law of nature, that no animal can thrive or exist in a healthy state without a constant supply of pure air. We have seen animals, particularly sheep, both in Canada and in England, very much deteriorated from insufficient attention to this very simple and necessary rule.

Ransome and May's Portable and Locomotive Steam Engine.—We learn from an English Agricultural journal that steam, for farming purposes, is beginning to engage the attention of mechanics in right earnest—the above eminent firm having recently brought out an engine that can be worked from four to seven horse power, according to the pressure of steam employed. It is furnished with a tender, and is locomotive on a common road; it requires no other fly wheel than those on the hinder axis, which act also as carrying wheels, when travelling. As the process of grinding, chaff cutting and thrashing, require very different rates of revolution, the power can be taken off from the crank shaft, the wheel shaft or the edge of the driving wheel; and, by altering the gearing connecting the crank shaft with the shaft of the driving wheels, two changes of velocity may be made.

Paul's Deep-Draining Machine.—This machine, which is an English invention, may be made to cut a drain three or four feet deep at a single operation, at the rate of 300 feet per hour, having a level bottom for the tiles to rest upon. It is said it may be worked by three or four horses; but we should think, however, that power quite inadequate in stiff soils for the before mentioned depth. It is adapted for raising the sub-soil to the surface for the purpose of claying or making lands; and when the clay is in a plastic state is said to raise from four to five cwt. per minute. It

may be used to greatest advantage when the surface of the soil may have become so hard, either from frost or dry weather, as to render it impracticable to accomplish the cutting of drains by manual labour. The utility of this implement, when it is required to cut drains on clover lands in the course for wheat crops, and from which the first crop has been taken, is clearly seen; as the clay or marl from being immediately spread upon the surface, becomes thoroughly pulverized, and enters into immediate operation for the succeeding crop. We know not the expense of the implement, but from the brief description that has come under our notice, we should be inclined to think that it might be suitable to the heavy worn out land of this country. There is frequently much virtue in the sub-soil, and which only requires to be moved.

Smithfield Cattle Show.—The annual exhibition of this well known society took place as usual in London on December 10th, 11th and 12th, and was numerously attended; not less than 20,000 persons, including a large number of ladies, passed through the bazaar during the first day. In live stock, one fifth more entries were made than on any previous occasion; and the quality is said to have been of a very superior description. The Prince Consort as usual was a pretty extensive exhibitor, and three prizes appear to have fallen to the lot of His Royal Highness. The Duke of Richmond,—the president of the society, and the firm and consistent friend of agriculture, —the marquis of Exeter, Earls Leicester, Fitzwilliam, Radnor, and other noblemen, were more or less successful. The great bulk of the prizes, however, we are glad to see were carried off by tenant farmers, several of whom were for the first time winners.

The implement department was unusually crowded with almost every variety of the most valuable machines in use on the farm, and which fully maintained the reputation of the makers generally, in the quality and style of material and workmanship. Amongst the novelties were the "Royal Albert Scarifier," made (under the direction of general Wemyss, Prince Albert's farm steward,) by Mr. Smith of Uxbridge. Messrs. Clayton and Shuttleworth, of Lincoln, and Messrs. Barrett, Exall & Co., of Reading, each exhibited a portable steam engine, for agricultural purposes.

Irish Agricultural School.—A meeting, attended by Sir R. Kane, the president of the Queen's College, Mr. Fagan, M. P., colonel Chatterton, the High Sheriff, and several other gentlemen of distinction, was held in Cork lately, for the purpose of establishing an agricultural school of industry, in Munster, in connection with the provincial college, "by the formation of an agricultural garden and experimental farm; and also a museum of materials connected with these important subjects, so as to secure to this locality the appropriation of the £5000, as set forth in the second section of the 11th and 12th Vic., chap. 115." The necessary steps to carry out the objects of the meeting were unanimously adopted.

ON VARIETIES OF PLOUGHS AND PLOUGHING MATCHES.

The following communication from one more accustomed to handle the plough than the pen, was sent us some months back, and got mislaid. It refers to a subject of great importance in practical agriculture; and whether a ploughing match between Canada and the state of New York take place or not, we feel disposed to give our readers an opportunity of forming their own opinion on our correspondent's views and suggestions in reference to that subject.

To the Editors of the Agriculturist.

Gentlemen,—I send you a few thoughts on the subject of ploughing, after a six-and-twenty years' experience in that operation. I was first set to plough, or rather to annoy the soil, with an old one handle hog-plough, and from that to this, with very few exceptions, I have had opportunities of using all our different Canadian improved ploughs. On a careful examination, I find that our Canadian plough makers appear to have had but one chief object in view, that is, to see who can make the best plough for all kinds of work. Here lies the mistake. We should have, I think, not less than five different ploughs, to perform the work which one is often made to do. There should be a plough constructed for turning the green sod for a crop; another for summer ploughing when the ground is dry and hard; one for cross ploughing; one for deeply moving the loose soil; and another for making the seed furrow. Ploughing is a mechanical operation, and requires mechanical skill to manage properly. I would ask, where is the joiner that can do all his planing with one plane, and turn off work with speed and profit? Where is the smith that can split the heavy bar and weld the small rod with the same hammer, and turn off work advantageously? Where is the farmer that can plough the hard, heavy, green sod, and stir the loose, mellow fallow with one and the same plough, and turn off good work with speed and profit? The profit or advantage of mechanical operations depends on speed, the speed depends on the quality and suitableness of the tools employed. Perhaps some farmers may think, that to purchase a set of five ploughs, would be to incur a great and useless expense. But what says experience? I have an iron Scotch plough, which in ploughing twelve acres of hard stiff sward, will pay its own cost, from the perfect work it performs, and the greater crop which follows, compared with the imperfect work of the short handle, broad heel plough. But now I must lay it aside, with its long handles and all its other charms. On the other hand, the short handle broad heel plough will pay itself, in preference to the iron plough, in crossing twelve acres three times, counting speed and cutting the roots of thistles and weeds. For in a country like Canada, where the surface of the ground is confined by frost for one-third of the year, the ploughing season short, drought frequently severe, and wages high, it is evident that *speed* should be regarded as of first importance, as

much so in agricultural as in mechanical operations.

I will now offer a few thoughts on the national ploughing match between Canada and the State of New York, that was talked of a short time since. If this exhibition takes place, it should be for the purpose of ascertaining facts that will be mutually beneficial to both nations. I have witnessed a good number of ploughing matches in my time, and it is not uncommon to find some of the best ploughmen among the spectators, while a second-rate class are between the plough handles. Where is the man that has judgment and skill capable of ploughing a furrow to the credit of his country, who will not look beyond the end of his plough beam, and see the difficulty he may involve himself in by assuming the imposing title of national champion? Nine chances to ten but the champion belongs to the second-rate class; and the most perfect manner of turning the soil, the skill of doing which both nations are in search of, will in all probability remain in the dark. There would also be some danger that over estimates would be made of the value of the particular class of ploughs which might happen to win, and of calling out national political feeling and jealousy, which would be mutually injurious.

You may think from these remarks that I disapprove of such an enterprise, but far from it. Both good feeling and improved ploughing might result to both countries. I will give you some thoughts of my own as to what I think would be a desirable and profitable ploughing match.

Take the sum that is intended for the national match, say 100*l.*, and the 50*l.* which the ploughmen of Scarborough hold at stake, with the 50*l.* of the township that shall accept their challenge. This would yield a sum of 200*l.*; and if our Americal neighbours of the State of New York would raise another 200*l.*, a total of 400*l.* would be available for this purpose. Let there be given a premium for three sets, each to contain five ploughs, and each set draw 125*l.*, or 25*l.* for each plough. Those sets that draw prizes to be public property, never to be patented, but delivered up to the President of the Provincial Association till he has secured patterns for the province, when they are to be given up to the President of the New York State Agricultural Society. The remainder, 25*l.*, should be devoted to defraying the expenses of the judges, &c. I would recommend fifteen judges, all practical farmers, seven on a side, the fifteenth to be chosen in the country which produces the greatest number of patterns. Proper parties should be employed to ascertain the weight and draught of the ploughs, and mark the same on each before hitched on for trial. The judges should confine themselves to the best work and lightness of draught. The Provincial Association and New York State Society should give such premiums to the best ploughmen, as they might judge proper. Then let the Scarborough champions again come forward and give the Whitby gentlemen a chance to mend their ways. If such a trial of ploughs and ploughmen were to come off at one of our Provincial shows, say at Niagara next year, for 375*l.*, what a concourse of farmers and other spectators would be attracted to the spot from both sides. We might expect at least fifty competitors, bringing five ploughs each, all of different patterns. Such a competition would give a stimulus and honest pride in the noble and useful art of ploughing, and conducted on fair and honourable principles, must prove highly advantageous to all parties concerned.

I remain yours truly,
C. P. J.

Clarke, 1849.

INDIAN CORN AND PUMPKINS.

We have been favoured with the following facts by captain Shaw, of this city, which show what can be done in this country in the growth of the above productions. The corner of a field, consisting of a sandy loam, was well cultivated and manured with stable dung and planted with Indian corn (the yellow Dutton,) on the 21st May 1849, on a space comprising one fifth of an acre; the distance of the hills, four feet asunder. On the 2nd June, 18 hills of pumpkins were planted with the corn, of the mammoth variety, both of the green and yellow kinds. The gross amount of produce from this plot was 7053 lbs. of pumpkins and 29 bushels of corn in the ear! One specimen of the green pumpkins weighed, when gathered, 260 lbs; another of the yellow, 202 lbs.! Twelve selected specimens amounted together to 2102 lbs. The corn was hoed twice, and suffered in some degree from the depredation of crows and wireworm, and some hills of the pumpkins failed to vegetate. A small amount of night soil was applied to the pumpkins; and we must confess that such gigantic specimens have never come within the range either of our observation or reading. We understand that Mr. Fleming, nurseryman of this city has seeds taken from the largest, for disposal.

THE ROYAL SOCIETY OF VAN DIEMEN'S LAND.

This society, for the promotion of natural history and general science, was founded under the auspices of Sir J. E. Eardley Wilmot, in 1843, and in 1844 the Queen became its patroness. It receives a grant from the public treasury of 400*l.* a year. A museum, containing already a large number of specimens, illustrating the mineralogy, geology, and natural history of the island, has been formed, and the nucleus of a library commenced. The papers and proceedings of the society are published quarterly. The first part contains several interesting reports on the coal fields of Van Diemen's Land, which appear to be rich both in bituminous and anthracite coals, and will prove at no distant period an immense source of wealth. The society, we find, encourages the important pursuits of the farmer and horticulturist; it having under its management a large and beautifully laid out botanical garden, in the vicinity of Hobart Town. These things are highly creditable to our fellow colonists on the other side of the globe. When will Canada follow the example thus set by a junior member of our colonial family?

EXTRACTS FROM AGRICULTURAL ADDRESSES.

We find the following extracts in the *Albany Cultivator*. The sentiments are such as we should like to see more prevalent in our own country:

INFLUENCE OF AGRICULTURAL PERIODICALS.—Agricultural reading is another subject to which I would call your attention. Papers designed chiefly for those interested in farming pursuits, engaging as they do the best intellect and most practical talent in the land, must be a store-house of interesting and useful knowledge.—They are moreover, our common medium for interchanging thought and opinions, and for communicating from one to the other, our useful discoveries. Though the ignorant and penurious may spurn such means of gaining intelligence; yet, it is observable and encouraging, that among the more intelligent farmers, are always to be found the best patrons of our Agricultural prints. And where the land is in the highest state of cultivation, and the domestic arrangements are of the most agreeable character, you will discover intelligence to use and appreciate those publications which are designed to bring conveniences and improvements to their farms and dwellings. Go the country over, and you will see that, in all the cases of failure in realizing a fair profit from the farm, there has not been wanting the requisite capital, the energy, the bone and muscle, so much as the desirable intelligence to give a right direction to their other powers. The maxim, "knowledge is power," is applicable in no case more than in that of farming.—*Address of* MOSES EAMES *before the Jefferson county Agricultural Society.*

I would say to every farmer, *take a good Agricultural Journal*, read it, study it, ponder upon it, make yourself not only familiar with its contents, but strive to understand the subjects of which it treats through other sources. You will thus be kept acquainted with agricultural improvements, and will constantly be made to feel the necessity of a more thorough understanding of your occupation. It will lead to the study of soils, and the nature of the plants which they produce; the adaptation of different manures to each, the food which the various vegetable substances require, and the best method of administering it, so as to produce health and vigor of fruit; the means to be employed that the harvest may realize your anticipations, the qualities of the different kinds of stock, the usefulness of new agricultural machines, and a variety of other subjects which require your investigation. Through it you commune with the leading spirits in your vocation. You behold what experience, unwearied patience, and the application of powerful minds, have accomplished. It will afford you instruction in all the different departments of your business, and prove a valuable guide to your progress. These benefits will not accrue from a bare cursory perusal of it. If sketched over like an ordinary newspaper, for the purpose of amusement, and then thrown aside to be forgotten, it will scarcely pay the price of subscription. It should be read with the interest excited, "with the spirit and the understanding," and with a disposition to profit by its teaching.—*Address of* JAMES M. BANKS, *before the Chenango county Agricultural Society.*

Kindred to, and of equal importance with agricultural societies, are the benefits to be derived from agricultural papers, for one or more of which no farmer should fail to subscribe. By their means improved agricultural implements—the making and application of manures—the introduction of new varieties of fruits and vegetables—the most approved breeds and principles of raising stock—the best rotation of crops—in short, every species of information that is valuable to the farmer is spread out before him.

I have seen in some of your fields, improved implements of husbandry and labor-saving machines, your first idea of which was derived from the *Cultivator*; and the construction of which you yourselves superintended in the workshop of a neighboring mechanic.—One of your number told me not long since, in his harvest field, that he had derived one hundred dollars benefit from this paper in the two years he had taken it.—*Address of* THOS. B. WATSON, *before the Clinton county Agricultural Society.*

LECTURES BY PROFESSOR JOHNSTON,

BEFORE THE N. Y. STATE AG. SOCIETY.

We are glad to observe that Professor Johnston is commencing a course of lectures at Albany, to be delivered during the winter. We trust they will be well attended, and do much good. Although we can offer but little encouragement to the learned and world-renowned lecturer that a class could be collected here, should he be able to pay us a short visit, yet we hope that the lectures mentioned below will in due time be published, in order that we may lay them before the agriculturists of Canada, in whose welfare we know Professor Johnston feels a more than common interest.

Syllabus of a course of lectures on the general relations of science to agriculture, by James F. W. Johnston, F.R.S., &c.

1st. The Relations of Physical Geography to Practical Agriculture.

2nd. The Relation of Meteorology to Practical Agriculture.

3rd. The Relation of Botany and Zoology to Practical Agriculture.

4th. General relations of Geology to Practical Agriculture.

5th. Relation of Chemistry to the soil, and its practical improvement.

6th. Relations of Chemical physiology to the Plant, and the modes of promoting its growth.

7th. Relations of Chemical Physiology to the Animal, its food and its growth.

8th. Relations of Chemistry to the Doctrine of Manures.

9th. Means by which general scientific knowledge may be diffused and made available for the improvement of practical agriculture, and the general elevation of the agricultural class.

The lectures will commence early in January.

B. P. JOHNSON, *Sec.*

THE WORKING-MAN'S REST.—Cheer thee up, child of labour!—the blessed Sabbath is thine own. It is the excellent gift of thy Maker—see then that no man rob thee of thy boon! It is the heir loom of thy family—see that it be not alienated from their possession! It is a sacred inheritance, bequeathed by successive generations of the godly—see then that its frail fences are kept unbroken, and that its fruitful soil is not, through neglect, cursed with sterility and nakedness. The fifty-two Sabbaths of rest with which the year is interspersed, are like patches of verdure, watered by ever-spring fountains, that dot the inhospitable wilderness, and invite its fainting travellers to exhiliration and repose.

CHARRING TIMBER.—The best method of charring the surface of wood, is to wet it with the most highly concentrated oil of vitriol. By this means, you carbonize not only the outer surface, but the surface of all the cracks and holes.—*London Chemical Times.*

REPORT ON THE STATE OF AGRICULTURE IN THE OTTAWA DISTRICT.

From Dr. Cotton Mathew Everett.

(No. 2.) *East Hawkesbury, Sep.* 1849.

Dear Sir,—I trust you will allow me, instead of answering your questions seriatim, to make such general statements as my limited experience and capacity may justify. The successful culture of all vegetables depends on the following prerequisites: 1. A soil containing certain proximate principles. 2. Water and ammonia in the form of rain. 3. Oxygen and carbonic acid in air. 4. Certain electrical influence. In the present state of science, we can only secure the first conditions requisite to success. It is however in our power to place within the soil the proximate principles required by all plants for their nutriment, and these abound most plentifully in barn-yard manure, at a certain stage of decomposition; its chemical combination being then most adapted to appropriation by the delicate tissues of vegetables. The most valuable portions of this manure are too frequently allowed to exude in gasses, for want of a slight admixture of gypsum, or some absorbent material. The soil itself in this district, in its organic constitution, is sufficiently diversified to justify the culture of all kinds of grain; but the general principles of tillage, including the admixture of soils and a rotation of crops, are almost wholly unknown. Most of our farms are in an anomalous transition state, between the wilderness and arable land; a state attended with many difficulties, surmountable only by time and untiring energy. Our condition might be ameliorated by labour-saving machines, a great desideratum here. Much diversity of result has attended my own experimental agriculture, induced mainly by the fluctuation of the seasons. I have generally found early crops of all kinds the most prolific, though occasionally the reverse has happened. For some years wheat has been justly considered an uncertain crop. Corn was so for a term of years previously. Every other crop fails occasionally. Wheat has of late years probably averaged ten bushels; oats, twenty; peas, fourteen; and barley eighteen bushels per acre. This lamentably low estimate is intended for this vicinity, and is, I am persuaded, not far from the truth. Such a result is perhaps equally owing to imperfect tillage and to dry or otherwise unfavourable seasons. Little rivalry exists among the people, and labour (our only capital) is deteriorated by its injudicious and indiscriminate expenditure. Individual exceptions exist, but the example is well nigh lost upon the mass. I am ill qualified to propose remedial measures, nor do I suppose they would lie within the scope of your requisition. I must decline entering upon any other topics connected with this subject, for want of time, and subscribe myself,

I am, Sir,
Your obedient servant,
E. M. Everett.

To Charles P. Treadwell, Esq.,
President, O. D. A. Society.

From John Pattee, Esq.

(No. 3.) *Longueil, Sep.* 1849.

Dear Sir,—Your letter of the 20th of August, was duly received, in which you expressed your intention of representing this district by letter a the Grand Agricultural Show at Kingston, and requesting my opinion as to what kinds of grain are cultivated with the greatest success, the best time of sowing, the quantity of seed required per acre, the best kinds of manure used, &c. &c.

The success of growing different grains, o course varies more or less with the seasons; but as a general rule for this vicinity, I consider wheat and corn the two kinds grown with the greatest success. This district possesses a variety of soils, and consequently suited to a variety of crops, clay or marl being more especially adapted to the growing of wheat and oats, while a sandy or loamy soil is better suited to the growing of Indian corn, rye, turnips, &c. My own farm being of a sandy soil, I have not, to any extent, attempted the growing of wheat; but from observation and my own experience, I am of opinion that it should be sown as early in May as possible, and that the proper quantity of seed, on land in a good state of cultivation, is one bushel and a half per acre. Indian corn should be planted between the 12th and 20th May; old land requiring eight quarts of seed per acre, and new land somewhat less. This crop requires good husbandry in order to secure success, and when properly dealt with, generally gives a greater remuneration for labour than any other—thirty, forty, and sometimes sixty bushels being obtained from an acre. It is also a good crop to clear the land of weeds and prepare it for a crop of wheat. Two men with a team of horses can cultivate ten acres, when the land is not exceedingly foul. The time of labour may be said to extend from the 1st of May to the 1st of August, with the exception of harvesting, which is performed towards the close of September.

I would here beg to remark, that a sandy or loamy soil is more easily exhausted than a clay one. On this account, great regard should be paid to a rotation of crops, on lands of a light or sandy soil, and also to a regular system of manuring. The method which I have pursued, and which I think might be advantageously adopted on all the high lands in this district, is as follows. I break up pasture or meadow land and sow oats and peas, or plant corn: when I plant corn, I use gypsum or unleached ashes, say one bushel and a half of gypsum or ten bushels of ashes per acre, and apply it immediately after the first weeding. The second year, I give a good dressing of barn-yard manure, and plant corn or potatoes. The third year, I sow wheat or oats, and seed down; or which is preferable on dry land, I sow fall rye after wheat, and then seed down with timothy. The first year after seeding down, I sow about one bushel and a half of plaster per acre. I mow two years and then break up again, or pasture two years, which is better, when provided with fences. The present season has been very unfavourable for the hay crop, as well as for all others, in consequence of the drought. Where I

have usually cut forty tons, I have only about twenty-four this year.

With respect to the crops most neglected that might be cultivated advantageously, I am hardly prepared to decide. It is very natural for every practical farmer to sow or plant that kind of grain for which his land is best adapted, and for which he can find the readiest market. Experience and the good sense of the husbandman must decide upon this point.

It has heretofore been a practice among the farmers in this district to sow and plant more land than they could manure or cultivate well; the consequence of which is that a great quantity of land has been rendered almost useless. A method of renovating land exhausted by over cropping, has been of late very successfully practised in the state of Vermont, which would I am confident succeed well here. It is this—sow a crop of buckwheat and when in full blossom plough it in as manure. Two crops may be grown in one season, and the land sufficiently enriched to grow a good crop of wheat or corn.

With every respect I am, dear Sir,
Your obedient servant,
JOHN PATTEE.

To Charles P. Treadwell, Esq.,
President O. D. A. Society.

(From Elijah Brown, Esq.)

(No. 4.) *Hawkesbury, Sept.*, 1849.

Dear Sir,—I take the liberty, at your request, of saying a few words on the subject of Agriculture, at the same time not thinking of giving any thing of much general information.

I will give you a brief sketch of the farming I carry on; say the farm I live on. On this farm there are about 300 acres under cultivation. I plough 75 acres, and my hay land may be stated at 65. This season my hay crop is light, in consequence of the drought; but my wheat, oats and buckwheat, I consider good. My potatoes are rather a light crop, and my corn somewhat below an average. I sow black sea wheat in preference to any other, and have this year sown it at different times. My first sowing was on the 3d May, at the rate of 1¾ bushels to the acre. It was fit for harvesting on the 20th August, and will give about 20 bushels to the acre. My principal sowing was on the 28th May. On this I put 1¼ bushels seed per acre, and the produce is adjudged at 30 bushels to the acre. My last sowing was on the 15th June, on two acres of land that had failed for turnips. This last will, I expect, be fit for harvesting within three months from the time of sowing, and will yield 30 bushels to the acre. These facts may go far to prove the best time for sowing black sea wheat. They afford to me sufficient evidence that the most proper time of sowing it is the last week in May, and the first week in June. Upon the whole, I am of opinion that the wheat crop is considerably above the average of former years, particularly in this vicinity; and that our markets will be tolerably well supplied with that rich article during the present season.

I would further beg to say a few words on the improvement of cattle. I believe it is generally admitted in our district that the imported breeds of horses and horned cattle have been a failure. To say the least, they are not so susceptible of improvement, neither do they give such satisfactory results to the farmer, as those raised in our own country. Of all others, I conceive the Canadian breed of cattle the best for this climate; they are easier kept during our long and dreary winters, and they are easier fatted and make richer and nicer beef. Even in the early stage of the animal, say the veal calf, the quarter will be found heavier and the skin better than any at the same age of the imported breeds. I am also of opinion that there is more improvement to be made upon the common Canadian horse than either the Scotch or English drays.

I shall say a few words about gypsum or plaster. This absorbent has been mostly recommended by agriculturists in the state of New York for dry light land, or a sandy or gravelly soil. You, Sir, are well aware that there is not much of that kind of soil in this district, and if there were I have never been induced to believe that the farmer would derive much benefit from plaster; although it doubtless contains ingredients for producing a rapid vegetation. When ground is exhausted, plaster may be applied; but the crop should never be taken from the ground. It should be clover or buckwheat, and ought to be ploughed in while green; for it seems no more than fair that if the ground has been robbed of its substance it should be paid back with interest.

I remain, Sir, with respect,
Your obedient servant,
ELIJAH BROWN.

C. P. Treadwell, Esq.

Questions put to Mr. Pierre Leduc and answered by him as follows:

1. How many acres of wheat have you sown in any one year?

About seventeen years ago, I sowed 100 acres of wheat, which produced 1700 bushels of excellent grain. Since which the wheat crop has deteriorated; but within three or four years it seems to be more productive, and this year it will be a pretty good crop.

2. When wheat failed, what did you sow instead of it?

When the wheat crop failed I principally sowed oats and peas in lieu of it. Some years I have sown 150 bushels oats, 50 bushels peas and 50 bushels wheat. The oats and peas yielded well; but the wheat, although it yielded an abundant quantity of straw, had no grain in it. One year I gave 3000 bundles of wheat to my cattle, without thrashing it. Within the last three years I recommenced sowing black sea wheat; this year, by sowing it before the tenth of May, I have succeeded well.

3. Do you sow any other kind of grain?

Last year I sowed nine bushels of barley, which produced 300 bushels of excellent grain. This year I planted a piece of corn, which I consider not to be inferior to any in the district.

4. What quantity of grass seed do you sow on an acre?

After ploughing and manuring the ground well, I sow a peck of grass seed per acre, and have frequently harvested three tons per acre of superior hay.

5. When did you first begin to use the Scotch plough?

About twelve or thirteen years ago.

6. Do you sow winter wheat?

I never have, but I intend to try it this year.

7. What quantity of wheat did you sow this year?

Twenty-four bushels.

8. Have you a thrashing mill?

Last year one of my sons bought a thrashing mill of three horse power, which answers my use and that of my other sons, as we live near each other.

9. How many horses do you require to do your work.

Three.

10. How many cows do you keep?

Five.

11. How many sheep do you keep?

About seventy; had I not been unfortunate I would have had about one hundred and fifty.

12. What kind of land have you?

My land is a strong clay, and I find it advantageous to plough it as early as possible in the fall.

La Bay, Seigniory of L'Orignal,
20th August, 1849.

(No. 6.) *L'Orignal, Sept.*, 1849.

Mr. Pierre Daulth, whose farm lies on the low ground between L'Orignal and Caledonia Springs, states that several years ago, he had in one year 140 bushels wheat on four acres of ground, and on other four acres 180 bushels oats; that from the sowing of two bushels peas he had a produce of 30 bushels, and had 12 tons of hay on four acres of land, but these four acres were the best part of his meadow. Last year he raised on 50 acres, 25 tons of hay, 125 bushels wheat, and 400 bushels oats. The soil is a rich strong clay, with a covering of four or five inches of black mould. He generally does his ploughing in the month of September, and uses a Scotch plough and harrow.

[We regret our inability, from want of space, to insert the whole of these very interesting and instructive reports in the present number; the remainder will appear in our next. The public we are sure will feel indebted to Mr. Sheriff Treadwell, and the gentlemen who so promptly answered his call, for the ability and correct patriotic feeling which they have evinced. We hope other districts will follow the example.—Editors Agriculturist.]

A WORKMAN'S HALL.

Messrs. Ransome & May, the great agricultural implement makers of Ipswich, England, have recently completed, at a cost of upwards of one thousand pounds, a large and commodious building for the use of their numerous work-people. It contains a library, reading-room, baths and a kitchen. All the advantages of the establishment may be enjoyed for the trifling payment of one penny a week. This firm, which has long been distinguished for useful inventions and superior workmanship, unites in an equal degree an enlightened and benevolent desire to promote the physical comfort and intellectual improvement of the five or six hundred hands in its employment.

Since writing the above paragraph, we regret to learn from our English files, that Mr. Ransome, the senior member of the firm, has paid the great debt of nature. Hundreds will have lost a generous and warm-hearted friend, and society one of its most valuable members.

HORSE BREAKING.

From the Amherstburg Courier.

A few words on the subject of horse breaking may not perhaps prove unacceptable to the majority of your agricultural readers, and probably, if followed out, will produce results to riders and drivers far different from what it has ever been my lot to meet with; for a more perverse, stubborn, and stiff-necked generation of horses, are not to be met with in the world, than those of the Canadians; simply and solely from their improper education. The first lesson to be taught a colt is, to stand properly with his hind legs well under his body, his head and neck erect; this position naturally takes a considerable weight off the fore legs, and places it on his hind legs. To effect this, the colt for some two or three weeks, should daily be bitted with a heavy broad breaking bit (with yeys for him to play with). Fitted into a driving bridle to his roller should be sown three buckles; one with a strap to it on the top of his back, and one on each side about three or four inches below the bearing rein buckle. Bear him up gradually daily, until he carries his head properly, taking care to have the reins buckled up an equal number of holes on each side; let him stand thus in his stable for several hours daily, till he is well accustomed to his bit. His next lesson consists in lounging. After the colt has stood in the stable some time with his gearing on, take a stout cord five or ten yards long; pass one end through say the right ring of the bit, fastening it to the left; loosen some four holes or more of the left hand rein, and tighten the right rein an equal number of holes; run him round a circle (near side outwards,) changing *your* ground all the time; stopping him occasionally by word. After perhaps half an hour's work, reverse the reins and your rope, and run him round, near side inwards. Pay particular attention to this point, for many horses are spoilt by favouring one side more than another in turning. I have frequently noticed breakers invariably running their horses only in one direction; and farmers servants, and many gentlemen also, turning their waggons, carriages, &c., always one way. The consequence is, if you were once obliged to turn round in the contrary direction, the devil a bit your horse would do it for you. This lounging ought to be persisted in daily, twice a day, over rough ground, smooth ground, amongst logs, ruts, ditches, &c.; for nothing gives a horse more confidence in himself, renders him more sure-footed and quick-sighted, than exercising frequently in very broken ground. A young horse dreads a fall, and should he get one in this way he does not often get another. Nothing can be more disagreeable to a rider than a horse constantly tripping; yet from the method adopted here of breaking, there is not one that does not do it more or less. It is a wonder to me they do not come down much oftener than they do; for they go along with their heads sprawling out, their noses within a foot of the ground, looking as soon as they leave the stable just as if they had travelled 100 miles, and could hardly drag one leg after the other; but

let this system be pursued for some little time; an hour a day devoted to training a horse for three weeks, will render him a far different animal to one not so treated—and, believe me, adds to his price. Look at the difference between a recruit and a well drilled soldier: the one wollops along as if it were a trouble to him to move; the other with head erect, walks along with a light sprightly step, as if he could go for ever. Will any one tell me that the country clod looks as well as the soldier? just so the well broken horse carries himself fifty per cent. better than the badly broken. Having got your colt into something like form, by the above process, your next proceeding is to back him. This ought never to be done, however, until he is well tired out, by being lounged; for should he prove restive and throw the boy, the colt is very apt to resort to violence to get rid of his load in as summary a manner as he possibly can. A great deal can be done with kindness; harsh measures ought never to be resorted to, if at all to be avoided; coolness, patience and firmness rarely, if ever, failing to produce the necessary compliance; and when once you attempt to make a horse do a thing, it must be done, no matter at what sacrifice of time or trouble. The cause of so many horses refusing a fence in England, is chiefly to be attributed to their not having a determined rider on their backs when just broken. To render the boy's seat more secure, a horse blanket ought to be tightly rolled and strapped on each side, over the pommel, as a rest for the knee, should the horse kick, rear, or plunge. He ought at first to be led around by the lounging rein; the bearing rein held by the boy, the others strapped to the saddle; and for some time the boy is merely to be considered as a dumb agent; but by degrees he may take the side reins, fastening the bearing rein in the centre of the pommel. The boy must now walk him about; turning him to the right and left; but this turning must be done gently, in rather a largish circle, contracting by degrees till the horse will turn in his own length, both at a walk or a trot. After a short time the bearing rein may be taken away; but should the breaker find the horse bear too much on his hand, it must be put on again, until his acquired carriage becomes second nature. Martingales I altogether disprove of; they are of no possible use under any circumstances whatever, except in racing, or when a horse has a habit of chucking his head up, to the imminent danger of your teeth. A runaway horse is far easier stopped with even a plain snaffle, by sawing his mouth. A farmer has far greater opportunities of breaking horses to draught; harrowing, ploughing, drawing logs, being the best to teach them to draw truly. Still, if the horse shews fair to command a pull for gentlemen's work, the farmer ought not to neglect to lounge him; or, at all events, to work him pretty tightly reined up, taking care to turn him alternately to the right and left. After a while, when he is perfectly steady at the plough, he may advance him to the waggon and the road; if shy, he ought to be encouraged and patted; and should he shy at any object on the road, instead of being beaten, he ought to be patted and taken up to it; until he finds out the thing will not harm him, he will ever shy at it. This fault, however, is the most difficult to overcome of any I know, *unless that of drawing up at every tavern.* I apprehend the reason might, however, be traced to some fright in their earlier days, if people who bred were closely questioned on the subject. Be that, however, as it may, in some horses of fine spirit, it never can be got rid of; and the higher bred are just (if not more so) as liable to it as your rif rafs. I had an Irish pony years ago, that used to look for things to take a shy at; such a brute in that respect was he, that the first few times I rode him, he nearly sent me spinning twenty times a day; but "still I wore him on," until I became so used to it, that a sudden jump from one side of the road to the other never troubled me in the least. I tried scores and scores of times to cure him, but could never succeed; nor from all accounts was he ever cured of it. From the above few notes, any man with *temper* and firmness may break in a horse, without much trouble, to a certain point; after that they require to be taught all manner of things: to go up to the side of a gate, while you are on their backs, open and shut it; to back from a gate when you pull it towards you; to push against one till you shut it; to turn right or left by the slightest touch of the rein, or the heel; to stop when you tell them; to stand while you mount and dismount, or get in and out of your waggon; to lift their legs when you touch them; in short you cannot teach a horse too many tricks as long as there is no vice about them; the more obedient they are, the more pleasant to ride or drive one. Aye, and let me tell you, sells fifty per cent. better, for there is more a great deal in *carriage* and *appearance* than in the good shape of a horse. Not one in ten knows in what respect a horse differs from a cow; for all that every one pretends so to do. Give me a good tail, an arched neck, fineish head, and a well set up horse; and though he be a concatenation of bad points in other respects, he will pass muster with ninety nine out of one hundred persons. Remember this, then—I paid for the information—I give it to you; but perchance, were you all to earn it as dearly as I did, you would never forget it. I do not think I need add more, except that I prefer the use of a curb to a snaffle, for both riding or driving, and horses when accustomed to the curb, go just as well as with the snaffle. It may be all very well for trotters, of which I know nothing and care less, not being able to understand the pleasure of having your arms pulled off by holding the beast up, while he does his utmost to pull you out of your waggon. There may be fun in it, but I cannot see it. Give me a horse that can go twelve miles an hour, and hold himself erect; and all the trotters may go to the bottomles pit for all I care. *Cha cun a sou gout,* they are not my fancy. It is quite a prejudice of mine perhaps; just as much so, however, is the objection to the curb. Almost all horses in England are driven with them, aye and ridden too; and where in the world do you see such elegant turns out, such style, action, and good fair natural trotters as there? For I look upon the outrageous pace they get to here, only as the result of training, based on good natural qualifications. There they do not consider a trotter as the ne plus ultra of a b'hoys delight; on the contrary, rather would eschew it. My paper is out, and I'll have done; perchance I may have conveyed a hint to one person—if so, I am satisfied; if not, I am equally so, for I'm tired. Adieu aux revoir.

DINKS.

NEW MODE OF PRESERVING BUTTER.—There cannot be a doubt that the cause why butter is difficult to preserve good, is, that some material or ingredient of the milk combines so intimately with the buttery particles, that it is very difficult to separate. It has been said that Mr. E. H. Merryman, of Springfield Illinois, has discovered that this substance is *casein*, or the cheesy matter, and that he has contrived a mode of separating it by mechanical means, and thus preserves butter a long time if it be exposed to the atmosphere. The *Scientific American*, remarking upon this subject, says, that this separation of casein is done, by the Tartars of the Crimea, by melting the butter over a slow fire, and removing the scum as it rises. The butter is kept in a melted state there by means of a water bath at 180°, until the caseous matter subsides to the bottom. This is a slow and tedious method, and if Mr. Merryman's method is successful, it must be a very great improvement.—*Maine Farmer.*

An Agricultural Bureau in Connection with a Government Department.

"No direct aid has been given by the General Government to the improvement of agriculture, except by the expenditure of small sums for the collection and publication of agricultural statistics, and for some chemical analyses, which have been, thus far, paid for out of the Patent Fund. This aid is, in my opinion, wholly inadequate. To give to this leading branch of American industry the encouragement which it merits, I respectfully recommend the establishment of an Agricultural Bureau, to be connected with the Department of the Interior. To elevate the social condition of the agriculturist, to increase his prosperity, and to extend his means of usefulness to his country by multiplying his sources of information, should be the study of every statesmen, and a primary object with every legislator."

The above extract is from the recent message of President Taylor to Congress. The friends of agriculture, the great and leading interest even in the United States, have long urged the justice and necessity of some provision like that which the President recommends, to promote effectually the advancement of this important branch of national industry. The expense of a Bureau of Agriculture which should be employed in collecting and disseminating officially all needful information, as well for the guidance of Government, as for the instruction of the people at large, would be trifling and insignificant compared with the immense advantages that would result to the country. We hope the enlightened and patriotic suggestion of General Taylor will be acted upon by Congress, and that the example will have some effect upon the Canadian Legislature. If some of the useless and expensive appendages of our Government were abolished, and the Board of Registration and Statistics, as it is called, remodelled, and new powers and duties assigned to it, embracing the interests of agriculture, an incalculable amount of good might be done to the country. In a country like this, depending almost solely upon its agriculture, the utter absence of any thing like a provision of law, or an arrangement of any kind connected with the Government, to obtain information or to diffuse it, relative to this great and paramount interest, is certainly remarkable. How is it possible to legislate wisely or beneficially when the difficulties and burdens, the condition and progress, —the *statistics*, in modern phrase, of that branch of industry in which four-fifths of the population are engaged, and on their success in which depends their prosperity and that of the whole country, are unknown and disregarded by the law-makers? The voting of a few hundred pounds a year to be distributed in premiums, without knowing or having any means of ascertaining the effect produced by it in an authentic and official way, can do but little good.

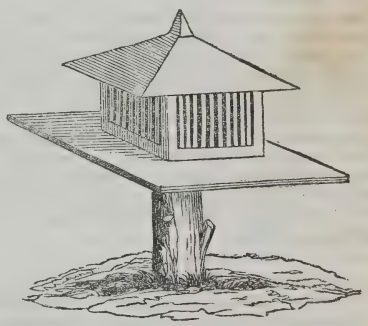
We should like to see a minister filling a department in which the guarding and fostering those interests of agriculture that may be affected by legislation, would form a prominent part of his duty. At all events, the person at the head of the Board which we have suggested, should have a seat in Parliament, in order to furnish information there, and be ready to prevent legislation that would prove hurtful, and promote that which would be a benefit to the farmer's interests. We shall return to this subject. and state our views more at large. If the farmers of Canada will only wake up from their present drowsy state and send men to parliament not because they are violent party hacks, or hungry lawyers ignorant of, and utterly indifferent to the wants and interests of the country, they would soon feel the benefits in bringing about real economy and needful legislation. The majority of their present legislators possess a keen scent for the spoils, and if Judgships, &c., will not fall vacant fast enough they are easily created, and of course an abundance of reasons can be brought forward to show how the people were suffering for the want of these blessings.

Poultry Feeding-Hoppers.—By C. N. Bement.

It is the practice with most farmers to feed their fowls grain, by strewing it on the ground from the hand. This is, however, considered by many as a slovenly and wasteful mode, and well calculated to invite rats and mice.

From experience we have found it more economical to keep grain constantly before them, where they can help themselves at all times; and for that purpose constructed several kinds of feeding-hoppers, but have been constantly annoyed by the depredations of rats and mice. Some of the patriachs, grey with age, would not only help themselves sumptuously, but actuall drive the fowls from their food.

Now, to obviate this difficulty, and to render them rat-proof, we present a plan, a figure of which accompanies this, which is so simple, that any man or boy who can handle a saw, a plane and a hammer, with a few nails, could make one in a few hours that would cost little or nothing.



Poultry Feeding-Hopper.

First make a platform of boards, say three feet square, then make a square sixteen inches in diameter of strips of an inch and a quarter plank, and three inches wide; nail this in the centre of the platform; saw four strips one and a quarter inches square, for the posts, which should be about eighteen inches high; nail strips of plank two inches wide to the posts at the top, to secure and steady them; then take common sawed lath, or thin strips of board one and a half inches wide, and nail them to the top and bottom, up and down, leaving a space of two inches between each slat, which will enable the fowls to insert their heads to pick the grain. The roof may be formed four square, like the figure, or may be made flat, or pitched on two sides, like the roof a house, and should be detached, so that it can be moved when grain is to be

put in. Now, to make it proof against the rats and mice, it will be necessary to elevate it a few feet from the ground, and this can be done by suspending it with wires, or setting it on a post firmly set in the ground, as represented in the figure. The wires being small and smooth, they could not pass down them, and the platform projecting so far from the post, they would find it rather inconvenient to climb over the edge of the platform.

The fowls will soon learn to leap upon the platform, and feed from the grain-box between the slats. From ten to twelve fowls can feed at the same time.

This may he made self-feeding, by setting a funnel shaped box within, the small end reaching down to within half an inch of the bottom. The size or capacity may be varied according to the number of fowls kept. The foregoing is calculated for about one hundred fowls.—*American Journal of Agriculture.*

THE FARMER IS NOT PROPERLY ESTIMATED—WHOSE FAULT IS IT?

It is a lamentable fact, that the farmer does not occupy that elevated position in society that his occupation justly entitles him to. He is looked upon as a being below the lawyer, physician, divine, artist, merchant, or even a merchant's clerk. To be a *farmer*, is to be a nobody, a mere clodhopper, a digger of bogs and ditches, and dung heaps, and free to wallow in the "free soil" he cultivates, provided he never seeks to elevate himself above that position, to what the world is pleased to term "good society" Hence comes the desire of "the boys" to escape, not so much the drudgery of their employment, as from the idea that they are looked upon and estimated as mere drudges.

What blindness, folly, and false philosophy is this! The result of these false premises is, that the "professions" are crowded to the starvation point; clerks not only go begging, but become beggars, or worse; merchants are multiplied, and good, old-fashioned labour is gone out of fashion.

While we would give all due honor to the professions, the farmer, who is the *producer* of all, both in food and raiment, that adds to the comfort and sustenance of the human family, need not feel that he is *below* occupations that gain their support from the folly, pride, misery, or wickedness of their fellow creatures.

If the aspiration of farmers were half so strong to elevate their sons to farmers, as it is to make them merchants or professional men, and, perchance, loafers, we should soon be taught to look to the agricultural class for the best bred, as well as best fed, men in America.—*Barnum's Address.*

Breeding Horses.—The report of the committee on horses, for the Chittenden County, Vt. Agricultural Society, contained some good remarks. In addition to the hereditary transmission of qualities, it observed, "The progeny will inherit the united qualities of their parents. The good as well as the bad qualities will descend from generation to generation. Hence you will see the importance of a knowledge of the parentage, not only as to the sire but also as to the dam. Peculiarity of structure and constitution will also be inherited. This is an important consideration, though too much neglected, for however perfect the sire may be, every good quality may be neutralized, if not overcome by the defective structure of the dam. Let the essential points be good in both parents; but if there must be some minor defects in the one, let them be met and overcome by excellences in those particular points, in the other parent. We would also advise you, to let your breeding mares be in the full vigor of life. Do not put them to the horse too young, and especially do not let your mares be incapacitated for work by reason of old age. If so, you may expect that the foal will have a corresponding weakness, and scarcely will a single organ possess its natural strength. Our farmers are usually too negligent in the selection of their mares. They are tempted to part with their best mares, and to breed from those which are inferior."—*Cultivator.*

GRAND EXHIBITION OF INDUSTRY OF ALL NATIONS.

Our readers are already aware that preparations are now making in England for holding in London, in 1851, a magnificent exhibition, such as never has yet been witnessed, of the industry of all nations. The idea originated with His Royal Highness Prince Albert, and the noble project appears, from the latest accounts, to be finding great favour with all classes of people throughout the United Kingdom. The premiums will be both numerous and munificent, and it is said will be presented to the successful exhibitors by the hand of royalty. We regard this noble enterprise of our Fatherland, if sustained and carried out in the truly liberal spirit in which it has been conceived and commenced, as one of those mighty agencies which an onward and christian civilization calls into practical operation for promoting the peace and improvement of the world and the brotherhood of mankind. As the natural and industrial productions of England's wide-spread empire must form a prominent feature of the intended exhibition, we hope for the credit of Canada, that she will bestir herself in time, that her characteristic productions may be fairly and fully represented in the coming congress of all nations. It is probable that our legislative and municipal authorities will shortly receive some instructions from Home relative to this subject, and we earnestly hope that the people of this country will not lag behind in doing their part in this most usefel and world-renowned undertaking.

AGRICULTURAL ASSOCIATION OF UPPER CANADA.

Notice is hereby given, that a meeting of the Agricultural Association of Upper Canada will be held on Wednesday the 20th day of February next, at 10 o'clock in the forenoon, at the Court House in the city of Toronto, for the purpose of considering certain amendments to the Constitution of said Society, to be then and there submitted; and also for the transaction of other important business connected with the Association. A full attendance therefore is urgently requested.

By order,

Geo. Buckland, Secretary.

Toronto, January 2, 1850.

Gas Tar, or Asphalte Floor.—Dig sifted gravel such as is used for topping walks, and use coal-gas tar; level the ground perfectly, mix gravel and tar, two quarts of the latter to each bushel of the former, till every particle of gravel is saturated with tar. This is best done on a boarded or stone floor; spread evenly, about one inch thick; roll till hard with a heavy garden roller. When dry, add from two to five inches more, according to the purpose for which the floor is required. Roll as soon as laid, and frequently, until it is quite solid.—*Gardener's Chronicle.*

Horticulture.

IMPORTANCE OF ORCHARD PLANTING.

J. Dougall, Rosebank Nursery, Amherstburgh.

Climate and Soil of Canada peculiarly adapted to Fruit Culture.

Canada is probably as favorable a climate for the cultivation of fruit as any in the world. The great chain of Lakes and Rivers is most beneficial in ameliorating the climate, and also serves for water communication to a market, as fruit will bear very little land carriage.

There is no place, probably, of Canada, even the most inhospitable, where suitable localities could not be found to grow apples, if not other fruits ; and the banks of the St. Lawrence and Lakes, from a little below Quebec to Penetanguishene, are well adapted for raising nearly all kinds of hardy fruits, and in many localities any kind can be grown to perfection. It is a well known fact, that large bodies of water tend to equalize the sudden extremes of heat and cold, which are the most dangerous enemies the fruit culturist has to contend with in this country. Thomas says, "Large bodies of unfreezing water (such as Lakes and Rivers) are peculiarly adapted for the cultivation of tender fruits. They soften the severity of the cold, by the large and warmer surface constantly presented; on the other hand, they chill the dangerous warm air which starts the buds in winter, and they afford great protection by the screen of fog which they spread before the morning sun. Along the borders of the lower parts of the Hudson, and on the banks of the Cayuga and Seneca Lakes, tender fruit trees often afford abundant crops, while the same kinds are destroyed only two or three miles distant. Along the southern shore of Lake Ontario, the peach crop scarcely ever fails, and the softening influence of that large body of unfreezing water, extends many miles into the interior."

If the southern shores of Lake Ontario are so peculiarly suited for fruits, there is no reason why the northern shore should not be equally so: such is found to be the case on Lake Erie ; the northern being, in fact better adapted for fruit than the southern, and as far as my experience goes, I have found the freezing of the Lakes and Rivers in winter to be no injury to the fruit crop. They remain unfrozen in autumn much longer than is necessary for securing the fruit, and, though frozen over in winter, it has no injurious effects, as the water being colder exerts a greater and longer influence in spring, by cooling the air, in checking the tendency to vegetation, often induced by a few warm days in early spring, which are generally followed by cold weather after.

It is not severe cold that injures the fruit crop nearly so much as the sudden changes from heat to cold, during winter and spring; and the great object to be attained is to keep your fruit trees in a dormant state from the commencement of winter till late in spring, when frost is nearly over, which is to be attained more by choosing a suitable soil and site for your orchard than by climate, as will be explained when directions are given for situation and soil of orchard. Lower Canada, owing to the more uniform severity and longer continuance of her winters, and absence, in a great degree, from late spring frosts coming after vegetation has commenced, is much better adapted for the cultivation of all the hardy kinds of fruits such as apples, and the greater part of pears, plums, and cherries, than many of the more southern parts of Upper Canada, where late spring frosts are very prevalent. Parts of Ohio, Indiana, and Illinois, are much worse situated in this respect, than any part of Canada. Owing to being further south, vegetation commences much earlier, and is far advanced by the latter part of April, but it is often suddenly checked, and the hopes of a fine crop of fruit completely ruined, by a few days continuous wind from the north, sweeping down over the great frozen northern lakes, and ending generally in a severe frost. A glance at the map will shew that Canada is pre-eminently favored above all other countries in the world, in her splendid lakes and rivers, which are, in a great measure, sheltered from the cold northern and north-eastern winds, that sweep down from the far north over Lake Superior, across Michigan, Indiana, Illinois, &c.

As regards *soil* there can be nothing better adapted for the culture of fruit, than the greater part of that of Canada, and it would be a difficult matter to say where the best soil is to be found. By many it has been supposed that the Western parts of Canada are the best—but I believe it is because they are newer and not worn out. A great part of the valley of the St. Lawrence, near Montreal, must have been as rich soil as any on this Continent, but it has been partly worn out by injudicious culture. What it once was, however, it could soon be made again, by draining, manuring, proper tillage, and planting trees, for, I believe, the almost total absence of trees, in many parts, for miles together, to be one of the great predisposing causes to barrenness, as there is nothing to break the sweep of the bleak and chilling winds. On some of the most exposed parts of the Atlantic coast, it has been found impossible to raise any kind of tree or vegetable, owing to the tremendous winds sweeping in from the sea. One person, however, has succeeded in making a rich and beautiful garden, filled with all the choicest fruits, flowers, &c., on one of the most bleak and barren parts of the coast, by the simple plan of having two pailing fences round the garden, within a short distance of one another, the outside one being the highest; these break the wind sufficiently to allow all sorts of trees and plants to grow with great vigor, where nothing would grow before. A close board fence would have been useless, as it would have soon been levelled by the force of the wind, besides, the wind would have swept over it with unabated violence. I have often thonght that belts of trees which would act in a similar way, would have a very beneficial effect on some of the more exposed situations, in improving the soil, besides giving shelter to the cattle ; and fruit trees, though of slower growth than forest trees, would serve an excellent purpose for these belts, by selecting those of the quickest and largest growth. Many kinds of pears and apples would be well adapted for this purpose.

Any soil that is high and dry can be easily made to grow fine fruit; low lying, wet or peaty soils are not suited to plant fruit trees in, and should never be selected for this purpose. A great error is often made in choosing low warm sheltered places, at the bottom of the hills, or rising grounds, for planting the finer kinds of fruit, this is a mistake which often leads to the loss of the fruit, if not of the tree ; the tops or sides of the rising grounds in these instances being much better places—but this will be more fully explained in my next—*Montreal Witness.*

REMARKS ON THE DISEASES OF THE PEACH, PLUM, AND CHERRY TREE.

From the Horticulturist.

Whoever has observed with attention the growth of fruit trees in this country, must frequently have seen with surprise the peach and plum tree struck with disease, and dying early, while other fruit trees appear in a sound condition, and live to a great age. The cherry tree, also, seems to be less healthy in this country than in Europe.

This fact justifies the suspicion, that these trees contain in themselves properties not to be found in such as remain healthy ; and it is known that they differ from all others, in the abundance of a substance called *gum*. Let

us now inquire whether we can trace any connection between the existence of this substance and the predisposition to disease ?

In the healthy tree, gum is found mixed with the sap in a dissolved state ; when the tree is in a diseased condition, gum is secreted, and driven to the surface as a transparent, adhesive substance. In its normal state (dissolved in the sap,) it exists only in the bark ; that is to say, in those vessels through which the sap, elaborated by the leaves, descends to form a new growth of wood. Gum is soluble in water, and its greater or less degree of fluidity will depend on the quantity of water employed in its solution. By the simple process of evaporation, it can be reproduced in concrete form ; and is, therefore, in a high degree qualified to pass through the various stages of fluidity, under the reciprocal actions of heat and moisture. The health of a tree depends on the free circulation of the sap ; and if this circulation be *at all impeded*, the tree becomes *diseased*, and, if not relieved, death ensues.

May it not, therefore, be believed that the diseases of the peach, plum and cherry arise from impeded circulation, since they are, in this country, invariably accompanied by bursting or rupture of the bark ? And may it not be inferred, that this impeded circulation is caused by *gum*, when we remember the qualities of this substance, and how it may be acted upon by the excessive heats of the American summer ? The influence of the sun-beams, when the air is clear, is very powerful, and must necessarily cause an evaporation more or less rapid in proportion as the heat is increased or diminished. In those parts of the tree which are exposed to the sun, the juices are drawn forth, and the gum, becoming less fluid, moves more slowly, and gradually accumulates in, and obstructs the natural passages ; while, in other parts, the tree being subjected to more genial heat, a *more* active circulation is maintained. The consequence of which is an expansion, and at last a bursting of the vessels through which the sap flows, at those points where the obstruction exists ; and then ensue warts, or knobs, or an effusion of sap, and eruptions of gum. Though this is only theory, and needs to be verified by actual experiment and chemical research, yet it derives support from the practice of many gardeners. It has been stated on sufficient authority that *salt*, applied to the soil about a plum tree, will prevent the black-wart. If our argument be correct, the result of the action of salt is obvious enough : the tree receives in its system a solution of salt, which, by its nature, attracts moisture, (or gives greater fluidity to the sap,) and communicates it to the gum ; thus preventing the concretion that would check circulation. The cause of the disease (excessive heat,) is not removed by the application of salt ; but it acts as an indirect remedy ; it alters the secretions of the tree, so that the same cause does not produce the same effect.

We are aware, that plants brought into a condition contrary to their nature lose, to some extent, their vital powers ; and that, in consequence, a formation of slime-sugar (saccharum mucosum) takes place. It always follows a great decrease of phlegm, (principium mucosum,) which last substance abundantly exists in peach, plum, and cherry trees. In the capacity of the plant to produce slime-sugar at the approach, or, rather, in a certain stage of disease, we see how nature provides the means of accomplishing her ends, since the reduction of the plant to dust (its last destination, in the usual order of things,) is brought about by decay, and the first step towards decay is fermentation. Nature, then, has recourse to that powerful principle of fermentation—slime-sugar—to begin fermentation, and that the taste and odour of this substance will summon to its aid those additional agents of destruction—insects. When, therefore, we perceive, on diseased fruit trees, swarms of insects, let us not confound the effect with the cause, but rather attribute their presence to the disease, than the disease to their presence.—H. J. Ehlers, *Landscape Gardener*.

Barrytown, N. Y., Oct., 1849.

The foregoing suggestions are quite new to us, and come from one of the most intelligent German gardeners in the country. They appear to us to be worthy of the serious attention of our physiological readers, interested in the diseases of stone-fruit trees.

English Parks.—Your criticising correspondent, in the *Horticulturist* for September, speaks of the parks of the English gentry as if they were so many pieces of waste land, useless for all purposes except mere ostentation and display. Now, with all due respect for your excellent correspondent, I must say that his prejudice has to all appearance got the better of his knowledge. In short, he misrepresents Mr. Colman's excellent work in depicting the English as they are, and manifests total ignorance of what he is writing about. It is a notorious fact, that the private parks of the gentry are more fertile, and doubly more productive than any equal surface of land in the whole island. Productive of what ? Of human food—and human labour, independent of the grandeur and beauty they give to the landscape. Where is the farm or field in the kingdom that produces an equal amount of these two grand requisites of society, 'food and labor,' as these private parks ? I ask "Jeffreys" to point out any park in that kingdom, including trees and all—those monuments of time, coeval with the growth of centuries, that is not twice as productive as any other portion of the owner's estate. Look for instance, at Windsor Park, embracing a surface of many square miles, and where stands, perhaps, the finest avenue of trees in the world ; a lover of landscape beauty would not grudge to cross the Atlantic to look at it. Now, according to the phraseology of "Jeffreys," one would suppose this beautiful park just so much waste land—a perfect sacrifice to royal extravagance and ostentation. Yet of all that fertile park at Windsor castle, which feeds double the quantity of stock of any park, arable or otherwise, that I have seen in *New* or *Old* England, there is but a single acre or so, appropriated to a terrace flower-garden opposite the private apartments of the Royal family. There you may see the cattle browsing close to the castle gates. And there you may see the Queen and her husband walking among them with far less peevish delicacy or false refinement, than most of the American ladies would do. Even the pleasure parks of London produce their quantum of human food in the shape of beef and mutton, since they are all kept short by the grazing of sheep or cows. The English gentry know the use of money, and the *want* of it, too well to allow their parks to be unproductive for mere ostentation and display.

The people of England are proud, and justly too, of their parks. They are the distinguishing features of an English landscape, and present to the lover of nature a combination of utility and beauty which no other country in the world can supply, and which the ablest writers and men of taste

have been labouring for years past to introduce into this country. Contrast one of these old country mansions with those cited in the editor's excellent leading article of the September Horticulturist—place them in juxtaposition, and I ask—which would you imitate and which condemn?

A critic should be *just* as well as generous; but especially ought he to be impartial and unprejudiced. Some people cannot write the name of England without spitting fire at it. But were the sentiments consistent, the language might be excused.

As I have ventured to quiz probably some great incog—I hope he will receive my remarks in the friendly spirit in which I write them, and thank me for my candour.—R. B. Leuchars. *New Haven, Ct., Sept.*, 1849.

[Although we think our American friend has somewhat overstated his case by saying that "the English parks are *doubly more productive* than any equal surface of land in the whole island;" yet so much impressed are we with the general justness and remarkable good taste of his remarks, that we could not resist the temptation to transfer them to our own pages. It is a vulgar and most erroneous notion that the noble parks of the British Islands are generally unproductive. They are usually stocked with the best breeds of sheep and the finest specimens of horses and horned cattle that the world can produce: and even of such portions as are allotted to deer, the returns are far from being inconsiderable. Who for instance, could visit the noble and classic grounds of Woburn Abbey, the seat of His Grace the Duke of Bedford, covering some thousands of acres, with the extensive gardens, conservatories, farmery, picturesque cottages, adorned with the vine, the rose, the jessamine and the honey-suckle, surrounded for many miles by a thriving and contented tenantry and working population, without recognising marks of England's freedom and greatness—not merely at the present, but comparatively so through ages that are past—and with fond hope of yet higher degrees in ages yet to come. Some of our earliest and most endearing associations are connected with parks, which with the ivy mantled tower of the old village church, form the distinguishing characteristics of English rural scenery. Heaven in its mercy long spare our native land from the vandalism that would render treeless the one, and the impiety that would raze the other. —*Editors of C. Agr.*]

MATERIALS FOR YOUNG PEOPLE WHO WISH TO THINK.

The Atmosphere.—The ponderousness of the atmosphere serves us in a number of ways, of which the following are merely specimens.

By this quality we have what is called "*draught*" in our chimneys. The heat evolved from the fuel applied to our fires produces a rarified state of the atmosphere, which, together with the smoke, being of less specific gravity than the surrounding air, must seek a higher region, on the same principle as wood swims on water. Nature rebels against a *vacuum*, and, wherever the slightest approach to this is produced, she sends forth her resources to keep up a *plenum*. There are two things which some people think constitute the greatest plagues of life, viz., "*a smoky house and a scolding wife.*" The former is always the result of the builder's non-attention to nature's law; the latter often arises from a cause which we shall not here define.

This ponderousness, too, is that which causes to ascend, far away from us, all the effluvia generated by decomposed substances, and the numberless other causes, with the effects of which most people are well acquainted. Were it not that the air is heavier than these vaporous emissions, most of which are noxious as well as unpleasant, we should in vain open our windows, or in other ways seek the comfort of "*fresh air.*" Our olfactory nerves, designed to be the means of conveying the pleasing sensations which the fragrance of vegetation is designed to supply, would, in the absence of this quality of the air, be the most intolerable nuisance, as we should be constantly sickened by stenches the most disgusting, and prolific of disease.

The ceaseless motion in the atmosphere is the result of this ponderousness. Perhaps few are sufficiently acquainted with the benefit of winds. For a commentary on these, we will not go to the owner of a wrecked vessel, nor to the weeping mother of a lost sailor boy—their circumstances are peculiar; but we shall take our readers up the eminence which unbiassed reflection will supply, whence numberless advantages will be seen as the result of winds. To say nothing on the subject of navigation, so replete with civilizing effects, we perceive their necessity in order to vegetation. Rain is produced by a most beautiful process, which we shall in a future paper describe; but, as rain is produced from condensed vapour, which the heat of the sun exhales from the oceans and seas, we may remark, that were it not for the winds, these clouds would discharge their contents directly into those reservoirs whence they were originally produced. But the winds are the aerial agents by which those cloudy magazines are carried with amazing velocity from clime to clime, and by whose ministry we are supplied with fattening moisture for our hills and vales. Now, winds are the result of the ponderousness of the atmosphere. The sun, always shining upon some portion of our globe, rarifies or expands the atmosphere beneath it by its heat; that rarifaction causes its subject to rise, and, as in the "draughts" before mentioned, the heavier atmosphere around the rarified part rushes forward or inward to prevent a vacuum, and that rush constitutes what we term the wind, the motion of which is more or less violent, according to the extent of the rarifaction in a given place. The inward rush of the denser masses of air from all sides, towards a centre, which centre is the point of greatest rarifaction, gives rise to the circular motion of storms.

Another peculiarity belonging to the atmosphere is, that it always revolves with our earth in her diurnal motion. To find out how many tons of atmosphere rests upon our globe, would form a nice exercise for some of our young readers. When they know that each square inch is subject to a pressure of fifteen pounds, and that the earth is 8000 miles in diameter, the product may be easily ascertained. The weight is almost inconceivable, and if this atmospheric pressure were *stationary*, while the earth *revolves at the rate of one thousand miles an hour*, the results would be most disastrous. Most of our readers who are acquainted with the nature and uses of the lathe, must be aware that the effect of iron or wood *revolving*, while the "lathe tool" is *stationary*, is to dress off every protuberance, and to produce smoothness and uniformity. Suppose the earth be considered the substance revolving, and the atmosphere like a stationary "lathe tool," what would become of our waving forests, our stately mansions, and our strutting population? But Infinite Wisdom has finely adjusted everything which His hands have made; and those things which lie beyond the polluting touch of man, do yet deserve the epithet "*very good.*"—*Manchester Spectator.*

General Science and Miscellany.

RURAL ARCHITECTURE.

The above represents a beautiful residence recently erected in the neighbourhood of Rochester, N. Y. A taste for architectural beauty in the construction of private, even more than in that of public buildings, is evidently gaining ground among our American neigbours. In some of the cities and villages of the state of New York, the traveller will meet with many private dwellings that display an admirable taste in the owner, as well as the architect. We do not mean to say that occasional instances are not to be found in the outskirts of our own towns and villages of a most correct style in the building and an excellent taste in the arrangement of the externals; but to our mind, there is generally a stiffness, and an unsociable air about our genteel country residences. We should like to see this got rid of as fast as possible.

The above design is not inserted as a suitable pattern, after which we would recommend our farmers to copy. There is much costly and useless ornament. At the same time valuable hints may be taken from it. When a farmer is about to erect a dwelling to replace the old log house, he may just as well select the best site with reference to surrounding objects, and adopt a neat plan, as the contrary. And if he feel himself able to spend a few dollars to adorn and beautify his "castle," and his children's "home"—to make it agreeable to the eyes and attractive to the hearts of those who shall grow up within its walls; that when pursuing in after years, far away perhaps from its hallowed precincts, the dazzling objects of this world's ambition, they may occasionally turn with real satisfaction to the reminiscences of a *pleasant* home and a happy boyhood, we are the last to say, nay.

The following extract from an agricultural address is to our purpose:

Farmers' Dwellings.—We need a great improvement in this respect—we need a distinctive *Rural style of building*—comfort and convenience combined with neat and simple elegance. Nothing expensive, gaudy or obtrusive, but graceful in form, chaste in ornament, with quiet, neutral colors sweetly blending with the surrounding green, all breathing an air of peaceful, calm repose on which the eye may rest with pleasure. I would gladly enlarge upon this, did time permit. The house should not only be sheltered but *adorned* with trees—none more beautiful than those of our own forests.

A few choice fruit trees of various kinds, with grapes and smaller fruits which need but little care, with flowering shrubs and ornamental climbers should be there. None of the adornments of beauty are more graceful or attractive than fragrant and blooming vines around the rustic porch. And—let there be a *garden* too, it need not be a large one—not the unsightly patch of neglected earth sometimes so miscalled, intended for potatoes and cabbages, and filled with burdoch and nettles, but a neatly arranged plat for shrubs and flowers, laid out with taste and kept with care—*cultivate a taste* for flowers, and teach your children to love them. In doing so, you give them new sources of pleasure—new facilities for enjoyment. And do not deem the time they bestow upon them, lost time; it is well bestowed, and will yield a rich return in pure and simple joy, and the cheerful love of home.—*Address of* T. D. Burral, *before the Ontario Agricultural Society.*

NATURAL PHILOSOPHY.

We have made arrangements to procure a number of cuts to explain the various facts and principles of natural philosophy, with which every young man, whether he intend to be a farmer, a mechanic, or to enter one of the so-called "professions," ought to be familiarly acquainted. We shall devote a portion of the space intended for scientific and miscellaneous subjects to this useful and interesting branch of study. During the year we hope to be able to publish a complete epitome of the principles of those sciences usually embraced under the head of Natural Philosophy. Those who subscribe for the *Agriculturist* for 1850, will thus, in addition to the agricultural and other matter, obtain the substance of a scientific work, which of itself would cost 2s. 6d. or 5s. The younger

branches of every family who take our paper will thereby be put in possession of the means of becoming acquainted with the laws of matter—with principles, facts and illustrations that concern their daily occupations, which will help them to understand many things that must otherwise remain a puzzle and a mystery, or the subject of ignorant, and perhaps superstitious wonder. When we take into account the scanty supply of useful books, especially on such subjects, that is generally to be met with in the houses of our farmers, and the consequent ignorance of the plainest and most important principles of natural science in which too many of the youth of Canada are growing up to manhood, we think we cannot render a more useful or acceptable service to our youthful readers, than to lay before them a series of articles containing a plain, concise, and easily understood explanation of the subjects mentioned, accompanied with wood-cut illustrations of the most important laws and principles involved. We shall make the articles published in the "Library of Useful Knowledge," some of which are republished in the fifth book of Lessons, of the National Series, the foundation of our selections and remarks, with such extracts from other works as we may think needful.

The following introductory remarks and definitions occupy all the space we can spare in this number:

Natural Philosophy, in its most extensive sense, has for its province the investigation of the laws of matter, that is, the properties of matter; and it may be divided into two great branches. The first and most important (which is sometimes called *Natural Philosophy*, by way of distinction, but more properly *Mechanical Philosophy*) investigates the sensible motions of bodies. The second investigates the constitution and qualities of all bodies, and has various names, according to its different objects. It is called *Chemistry*, if it teaches the properties of bodies with respect to heat, combination with one another, weight, taste, appearance, and so-forth; *Anatomy* and *Animal Physiology*, if it teaches the structure and functions of living bodies, especially the human;—for, when it treats of the functions of other animals, we term it *Comparative Anatomy*. It is called *Medicine*, if it teaches the nature of diseases, and the means of preventing them, and of restoring health: *Zoology*, if it teaches the arrangement or classification, and the habits of the different lower animals: *Botany*, including *Vegetable Physiology*, if it teaches the arrangement or classification, the structure and habits of plants: *Mineralogy*, including *Geology*, if it teaches the arrangement of minerals, the structure of masses in which they are found, and of the earth composed of these masses. The term *natural history* is given to the three last branches taken together; but chiefly, as far, as they teach the classification of different things, or the observation of the resemblances and differences of the various animals, plants, and ungrowing substances in nature.

Here we may make two observations. The *first* is, that every such distribution of the sciences is necessarily imperfect; for one runs unavoidably into another. Thus, Chemistry shows the qualities of plants with relation to other substances, and to each other: and Botany does not overlook those same qualities, though its chief object be arrangement. So Mineralogy, though principally conversant with classifying metals and earth, yet regards also their qualities in respect of heat and moisture. So Zoology too, beside arranging animals, describes their structures like comparative anatomy. In truth, all arrangement and classification depend upon noting the things in which the objects agree and differ; and among those things in which animals, plants, and minerals agree or differ, must be considered the anatomical structure of the one, and the chemical qualities of the other. Hence, in a great measure, follows the *second* observation, namely, that the sciences mutually assist each other. Thus, arithmetic and algebra and geometry, and the purely mathematical sciences aid mechanical philosophy; mechanical philosophy, in like manner, assists chemistry and anatomy, especially the latter: and chemistry very greatly assists physiology, medicine, and all the branches of natural history.

The first great head, then, of natural science, is mechanical philosophy; and it consists of various subdivisions, each forming a science of great importance. The most essential of these, which is indeed fundamental, and applicable to all the rest, is called *dynamics*, from the Greek word signifying *power* or *force*. It teaches the laws of motion in all its varieties. The application of dynamics to the calculation, production, and direction of motion, forms the science of *mechanics*, sometimes called *practical mechanics*, to distinguish it from the more general use of the word, which comprehends every thing that relates to motion and force.

The application of dynamics to the pressure and motion of fluids, constitutes a science, which receives different appellations according as the fluids are heavy and liquid, like water, or light and invisible like air. In the former case it is called *hydrodynamics*, from the Greek words signifying *water* and *power;* in the latter *pneumatics*, from the Greek words signifying *breath* or *air*. And hydrodynamics, is divided into *hydrostatics*, which treats of the weight and pressure of liquids, from the Greek words for *balancing of water*, and *hydraulics*, which treats of their motion; from the Greek word for several musical instruments played with *water* in *pipes*.

COMMON SCHOOLS.

We intend in the future numbers of our journal, to devote a little more attention to the subject of schools, and popular education, than we have heretofore done. We have arranged to obtain a number of cuts from the Chief Superintendent of Schools, illustrating the plan of building, seating, and fitting up school-houses, so as to secure the objects aimed at, in the best manner. Every farmer and every inhabitant of the country is directly interested in the improvement of schools, and the promotion of the instruction of our youth. The subject will not therefore be inappropriate to our pages, if treated on general grounds. The Common School, as an agricultural cotemporary truly remarks, is justly regarded as the palladium of our civil liberties. It is, and must be, from this source that the mass of our citizens derive the groundwork of the knowledge which will enable them to sustain the principles of a free representative government. It is, then, of the highest consequence, that these schools be made to confer the greatest possible advantages on those for whom they are designed. In regard to their character and utility, much depends on the countenance and encouragement given them by parents. The improvement of children will be comparatively unimportant, if parents are indifferently disposed towards teachers and schools.—This subject is brought forward in a striking light

in the following circular, addressed to parents, written by an observing and intelligent superintendent of schools, in the State of Vermont.

I know you feel an interest in the education of your children, and therefore I wish to call your attention to the winter schools, which are about to commence.—What shall be the value of the school in your district to your children? Are you aware that the success of your school will depend much upon your co-operation with the teacher? I find throughout the county, that where the parents take the most interest in schools, there they have the *best schools*, and where they take the least interest, the poorest schools. It is the uniform testimony of teachers, that the active co-operation of parents is essential to success in their schools. Shall *your* teacher have this co-operation the coming winter?—You may receive the public money, pay your taxes, employ a good teacher; but unless you take an interest *yourselves*, you cannot have a good school. The school will be what you make it. Do you ask what you can do to secure a good school?—There are many things you can do. I will mention some of them:

1. You can furnish your children with *suitable books.*

2. You can see that your children attend school, *punctually* in the *morning*, and regularly *every day.* The tardiness and irregularity of scholars is one of the greatest evils in our district schools. Parents can correct this evil, *if they will.* In Putney, the average attendance last year was much greater than the year before—the average attendance in one school of fifty scholars being sixty days out of sixty-six day's school. In most schools in the county, the average attendance is not over forty or forty-five days—more than one-fourth of the schooling being absolutely lost, *needlessly lost*, while the value of the remaining three-fourths is greatly diminished. If your children are tardy, or occasionally absent from school, they will not be interested in the schools, or make progress in their studies. A few days' absence frequently destroys the value of more than half a winter's school. If your breakfast is half an hour too late, it may be the means of preventing your children from being interested in their studies for that day, and so through the winter. Will you not, then, as parents, *see to it that your children attend the school punctually* in the morning, *and regularly* every day?

3. *You can visit the school.* The practice of visiting schools is becoming more common in some towns, and the good effects of such visits are seen in both teachers and pupils. Still, there are many districts where neither the parents nor the committees ever go into the schools, and the best teachers accomplish but little in such districts, on account of the indifference of parents. It is impossible for a teacher to keep a first-rate school where parents do not feel interest enough to look in and see whether their children learn or not. You may as well expect to raise corn in winter, as to find a good school in such a district. The neglect and indifference of parents will be as fatal to the interests of the school, as the snow and ice to the growth of corn. If you have a field of grain, are you not accustomed to visit it, now and then, to see how it grows, and that, too, when your visits do the grain no such good as they should do your children? for the grass and the grain have no eyes to see you, no smiling faces and cheerful hearts with which to greet you, as the children in the school-room have. If the sun shines and the showers fall, the grass and the grain will grow on. But what the sunshine and showers do for the fields, the interest of parents will do for the school. A visit from you who are parents, will often be as serviceable to the school, as a shower of rain on the grass, or the warm sun, with a dressing of plaster, on the corn. Will not every parent in the country visit the district school at least *once* during the coming winter? If the teacher is a good one he will be glad to see you. If he is unfaithful, negligent, or incompetent, there is still more need of your visiting the school, even though the teacher should not wish to see you.

4. *You can sustain the teacher in the government of the school.* There is great complaint in our country, that the schools fail for want of *order.* This want of order is sometimes the fault of teachers, and sometimes of the parents. If parents do not govern their children at home, if they allow them to stay at home for every petty dislike they may have against the teacher, or if they are accustomed to take their children out of school, when favorite son or daughter is punished, no teacher can govern the school. One of our town superintendents stated in a public address, last winter, that most of the failure of their schools in government, had arisen on account of the unwarrantable interference of the parents in the government of the school. If parents listen to the foolish complaints of their children, the children will generally have complaints enough to make. If your teacher has faults, it is better for you to go and speak of them kindly to him, than to find fault with him or backbite and slander him behind his back. For much of the trouble with teachers arises from some misrepresentation or misunderstanding, which a little explanation from the teacher would have removed. Where there is a decided public opinion in favor of order, there will seldom be much disorder or rebellion in school. It is because the unruly and disobedient expect "*aid and comfort*" among some in the district, that they venture upon open disobedience and rebellion in school. If your teacher is incompetent, or unfaithful, let him be fairly *dismissed;* but do not let a *faithful* teacher be put down or driven away by the ill-will of an offended parent, or the clamor of unruly boys and girls, to the disgrace of the teacher, and still greater disgrace of the children and the parents. Your duty as parents, and as good citizens is not discharged by simply *not encouraging disorder;* it is your duty to *sustain order*, and frown on rebellion by your words and your influence. Men may *encourage mobs* in school, as well as in government, by *looking on* and *keeping still*, when they ought to *speak out*, and *frown down* rebellion. It is because the orderly keep still, that the few disorderly in our school districts make so much trouble.

5. You can do much, also, to benefit your children, by endeavouring to interest them in obtaining an education; by encouraging them to study and improve their minds during evenings; by discouraging those amusements which take off their attention from the school, and dissipate their minds; by showing that knowledge and virtue are better riches for them than any treasure of silver and gold.—James Tufts, *Supt. of Common Schools.*

MILLIONS OF MONEY THROWN INTO THE GUTTER.

That man gets his bones from the rocks and his muscles from the atmosphere, is beyond all doubt. The iron in his blood and the lime in his teeth were originally in the soil. But these could not be in his body, unless they had previously formed part of his food. And yet we can neither live on air nor on stones. We cannot grow fat upon lime, and iron is positively indigestible in our stomachs. It is by means of the vegetable creation alone that we are enabled to convert the mineral into flesh and blood. The only apparent use of herbs and plants is to change the inorganic earth, air, and water into organic substances fitted for the nutrition of animals. The little lichen, which, by means of the oxalic acid that it secretes, decomposes the rocks to which it clings, and fits their lime for "assimilation" with higher organisms, is, as it were, but the primitive bone-maker of the world. By what subtle transmutation inorganic

nature is changed into organic, and dead inert matter quickened with life, is far beyond us even to conjecture. Suffice it that an express apparatus is required for the process—a special mechanism to convert the "*crust* of the earth," as it is called, into food for man and beast.

Now, in nature everything moves in a circle—perpetually changing, and yet ever returning to the point whence it started. Our bodies are continually decomposing and recomposing—indeed, the very process of breathing is but one of decomposition. As animals live on vegetables, even so is the refuse of the animal the vegetable's food. The carbonic acid which comes from our lungs, and which is poison for us to inhale, is not only the vital air of plants, but positively their nutriment. With the same wonderous economy that marks all creation, it has been ordained, that what is unfitted for the support of the superior organisms is of all substances the best adapted to give strength and vigour to the inferior. That which we execrate as pollution to our system, they secrete as nourishment to theirs. Plants are not only nature's scavengers, but nature's purifiers. They remove the filth from the earth, as well as disinfect the atmosphere, and fit it to be breathed by a higher order of beings. Without the vegetable creation, the animal could neither have been nor be. Plants not only fitted the earth originally for the residence of man and the brute, but to this day they continue to render it habitable to us. For this end their nature has been made the very antithesis of ours. The process by which we live, is the process by which they are destroyed. That which supports respiration in us, produces putrefaction in them. What our lungs throw off, their lungs absorb—what our bodies reject, their roots imbibe.

Hence, in order that the balance of waste and supply should be maintained—that the principle of universal compensation should be kept up, and that what is rejected by us should go the sustenance of plants—Nature has given us several instinctive motives to remove our refuse from us. She has not only constituted that which we egest the most loathsome of all things to our senses and imagination, but she has rendered its effluvium highly pernicious to our health—sulphuretted hydrogen being at once the most deleterious and the most offensive of all gases. Consequently, as in other cases where the great law of self-preservation needs to be enforced by special sanctions, Nature has made it not only advantageous to us to remove our night-soil to the fields, but positively detrimental to our health and disgusting to our senses, to keep it in the neighbourhood of our houses.

In every well-regulated state, therefore, an effective and rapid means for carrying off the ordure of the people to a locality where it may be fruitful instead of destructive, becomes a most important consideration. Both the health and the wealth of the nation depend upon it. If to make two blades of wheat grow where one grew before, is to confer a benefit upon the world, surely to remove that which will enable us at once to do this, and to purify the very air which we breathe, as well as the water which we drink, must be a still greater boon to society. It is, in fact, to give the community not only a double amount of food, but a double amount of health to enjoy it. We are now beginning to understand this. Up to the present time we have only thought of removing our refuse—the idea of using it, never entered our minds. It was not until science taught us the dependence of one order of creation upon another, that we began to see that what appeared worse than worthless to us, was Nature's capital—*wealth set aside for future production*. In our eagerness to get rid of the pollution, we had literally not looked beyond our noses; hence our only care was to carry off the nuisance from the immediate vicinity of our own residences. It was no matter to us what became of it, so long as it did not taint the atmosphere around us. This the very instincts of our nature had made objectionable to us; so we laid down just as many drains and sewers as would carry our night-soil to the nearest stream—and thus, instead of poisoning the air that we breathed, we poisoned the water that we drank. Then, as the town extended—for cities, like mosaic work, are put together piecemeal—street being dovetailed to street, as county to county in our children's geographical puzzles—each new row of houses tailed on its drains to those of its neighbours, without any inquiry being made as to whether they were on the same level or not. The consequence of this is, that the sewers in many parts of our metropolis are subject to an ebb and flow like their central stream—so that the pollution which they remove at low-water they regularly bring back at high-water to the very doors of the houses whence they carried it.

But, thanks to organic chemistry, we are beginning to wake up. Science has taught us, that an improved and comprehensive system of drainage is a question that concerns not only our health, but—what is a far more important consideration with us—our breeches' pockets. What we, in our ignorance, had mistaken for refuse of the vilest kind, we have now learned to regard as being, with reference to its fertilizing virtues, "a precious ore, running in rich veins beneath the surface of our streets"—whereas, if allowed to reek and seethe in cesspools, within scent of our very hearths, or to pollute the water that we use to quench our thirst or cook our food, it becomes, like all wealth badly applied, converted into 'poison" as Romeo says of gold, to the Apothecary—

> "Doing more murders in this loathsome world
> Than those poor compounds that thou mayest not sell."

According to the average of the returns, from 1841 to 1846, we are paying two millions every year for guano, bone-dust, and other foreign fertilizers of our soil. In 1845, we employed no fewer than 163 ships to bring home 220,000 tons of animal manure from Ichaboe alone; and yet we are every day emptying into the Thames 115,000 tons of a substance which has been proved to be possessed of even greater fertilizing powers. With 200 tons of the sewage that we are wont to regard as refuse, applied to the irrigation of one acre of meadow land, seven crops, we are told, have been produced in the year, each of them worth from six to seven pounds; so that, considering the produce to have been doubled by these means, we have an increase of upwards of 20*l.* per acre effected by the application of that refuse to the surface of our fields. This return is at the rate of 10*l.* for every 100 tons of sewage; and, since the total amount of refuse discharged into the Thames from the metropolis is, in round numbers, forty millions of tons per annum, it follows that, according to such an estimate, we are positively wasting four millions of money every year—or, rather, *it costs us that amount to poison the water about us*. Or, granting that the fertilizing power of the metropolitan refuse is—as it is said to be—as great for arable as for pasture lands, then, for every 200 tons of manure that we now cast away, we might have an increase of at least twenty bushels of corn per acre. Consequently, the entire forty million tons of sewage, if applied to fatten the land, instead of to poison the water, would, at such a rate of increase, swell our produce to the extent of four million bushels of wheat per annum. Calculating then that each of these bushels would yield sixteen quartern loaves, it would follow that we fling into the Thames no less than two hundred and forty-six million pounds of bread every year; or, still worse, by pouring into the river that which, if spread upon our fields, would enable thousands to live, we convert the elements of life and health into the germs of disease and death—changing into slow but certain poison that which, in the subtle transmutation of organic nature, would become acres of life-sustaining grain.—*Morning Chron.*

IMPORTANT DISCOVERY.—COMPLETE REVOLUTION IN THE ART OF PAINTING.

A very important improvement in the preparation of paint, both as to durability and cheapness, and in avoiding the deleterious effects of the lead used at present, has been recently introduced by a French painter in Paris. The substitution of the white of zinc for the white of lead is the great fact of the discovery, and it would seem that the improved paints have been sufficiently tested to warrant their general use. We find the following interesting article translated from the French by the New York *Tribune*, and as it contains some useful information on painting generally, we give our readers the benefit of the whole article as early as possible:

The new invention of which we have spoken, considered in any point of view, either as regards the serious evils for which it offers a remedy, the resources which it creates in the greatest and most precious of the arts —Painting; the economies which it realizes, and the beauty which it procures, must excite universal interest in the highest degree. It is nothing less in fact than a complete revolution in the process of painting in oil.

If you open any of the reports of the Sanitary Council, presented every year to the Prefect of the Seine, you will always find an article entitled *Intoxication Saturnine*, which will always tell you in the words of the report of 1841, with but trifling variations in the numbers, 302 *sick*, taken with the Saturnine Affection, (Painter's Cholic,) viz: 237 workers in white lead; 43 house-painters, &c. &c., have been admitted in the hospitals; 289 have been cured, 12 are dead ,one became insane, and has been taken to the Asylum Bicetre, &c.

Now, then, let us repeat it again: In the nineteenth century, when science has made such great progress, surmounted so many obstacles, overcome so many difficulties, a product of almost primary necessity, manufactured by a large number of workmen, who are beset by a cruel infirmity, who are constantly decimated by death, a product used by a multitude of artists, exposed daily to its deleterious influence; this product, we say, still held its place, already necessary, always sought after, casting a scornful defiance upon humanity leagued together in vain against it!

Mr. Leclaire, a well known house-painter, who was the first to introduce in his establishment that excellent system of joint-stock association, of equitable division of profits, and of mutual assistance, which a happy emulation will realize every where, we trust at least, had yearly the misfortune of seeing many of his workmen affected with violent cholic, with paralysis, insanity, and even death itself, or forced in the prime of life to give up their avocations, with the sad prospect of letting their families sink into poverty and misery.

The deadly influences which every year prey upon so many victims have only one and the same cause, viz: *the use of colors in oil having lead for their base*, for these colors and these oils, by their property of oxydation, are cruel homicides.

The enemy, then against which, first of all, it was necessary to declare uncompromising war, over whom it was necessary to obtain a brilliant victory, was Lead, which had become, by an inexorable necessity, the main ingredient of all painting in oil. After that came the tints obtained by a combination of copper, also easily oxydised, and consequently greatly deleterious.

As we desire always, in all of our articles, to enable our readers to acquire the greatest amount of clear and practical knowledge possible, we shall here enter into some details upon the subject.

The fundamental colors in painting, those by means of which all tints possible are obtained, are white, black, yellow, red and blue, and for greater facility green is added; grey is a mixture of black and white, green a mixture of yellow and blue, violet and indigo are mixtures of red and blue, &c. &c.

The most important of the primitive colors, that which it is the most essential to render perfectly innocuous and unchangeable, is white, which enters into the composition of nearly all paints.

The white exclusively employed now is the white oxyde or carbonate of lead, of which that called the white of silver is only a more perfect variety. But the oxyde of lead is at once a violent poison and eminently subject to decomposition; it becomes dirty and black, and is destroyed by contact with sulphurous vapours, which are so abundant in nature that it is impossible, with every imaginable care, to protect it from their corroding influence.

For the yellow, we have the chromes and the orpines, and also the ochres, which are durable but deleterious; the chromes and the orpines are as fugitive and dangerous as white lead. The orange mineral is equally homicidal.

The blues, composed of cobalt, &c., leave nothing to desire; they have all the durability and innocuousness that are needed.

The greens are either too dear for house-painting, like Veronese green, or worthless, like the green of commerce, or deleterious to the system, or subject to rapid decomposition, like the green of copper, verdigris, &c.

The blacks, like the blues, are perfect.

This brief enumeration shows us that the great and difficult problem presented, which Mr. Leclaire sought to find a solution of, with so resolute a purpose, may be summed up in the production of

First: A white, dazzling, unchangeable, inoffensive, and endowed at the same time with all the desirable properties of white lead.

Second: A yellow, a substitute adapted to all tints and shades, and without the objections in the yellows named above.

Third: A red, fixed and brilliant.

Fourth: A green, intense and exclusive of all preparations of copper and lead.

This is not all yet. The colours employed must not, before all, compromise the health of the artists or workmen, while they produce perfectly the desired effect. As regards the tint, it must effectually resist the destructive influence of all the corroding substances naturally or accidentally combined with the atmosphere. An indispensible auxiliary was an oil that would dissolve readily and dry in a short time. But the oil hitherto used, having these properties, contained a salt of lead (litharge) which was poisonous and disagreeable. It was then necessary to discover a new drying, innocuous and unchangeable oil.

Here, then, was the problem to be resolved by Mr. Leclaire. He worked at it assiduously for years, and finally obtained, by easy and certain means, and with great economy:

First: A pure and dazzling white—the oxyde of zinc.

Second: A gold, lemon and straw yellow—a preparation of the oxyde of zinc.

Third: An excellent red, having for its base sulphate of antimony.

Fourth: A number of fine greens, resulting from the oxyde of zinc and the sulphate of cobalt.

Fifth: A perfect drying oil, which is obtained by boiling 100 pounds of linseed oil with five pounds of per oxyde of mangunese.

For several years Mr. Leclaire has made exclusive and successful use of his various discoveries in colours and the drying oil. The experience of every day, made

on the largest scale in more than six thousand public and private establishments—the departments of war and of public works, the bank of France, the prefecture of police, the railroad depots, &c., demonstrate, or rather, establish beyond question, the following facts:

First: The new colours with their base of zinc, manganese, &c., are not injurious to the health of the workmen employed in their manufacture, the painters who use them, or the occupants of freshly painted houses. In the establishment of Mr. Leclaire an average of a dozen workmen were formerly attacked with painters' cholic yearly, and some, more unfortunate, suffered five or six attacks of this dreadful disease. Since the introduction of the oxyde of zinc and the oil prepared with manganese, *not a single workman has been poisoned.*

Second: The new colours are infinitely more solid and durable than the old: they are not affected by sulphurous vapours; they preserve, everywhere and always, their primitive tints, even in sulphuric bath rooms; and they have a property still more precious, namely: When they are cleaned by simple washing they resume their original brightness; while the old colours, when washed even with acids, which dissolve a portion, remain dull and spotted, and for the simple reason that everything which decomposes stains them.

Third: The white of zinc is so much superior to the white of lead, that when the framing of a panel is painted with the best white lead and the centre with zinc white, the contrast makes the framing look yellow and grey and offensive to the eye. In such a comparison even the Venetian white loses its purity. The white lead appears to absorb the light, while the white of zinc reflects it completely, and is brilliant and transparent.

Well! All the new colours invented by Mr. Leclaire, when compared with those having their bases in lead or copper, possess a preeminence as marked as the white of zinc does over that of the white of lead. They are at once richer, brighter, and fresher in tone. It is quite impossible, with the white of lead and the oil prepared with litharge, to obtain the delicate and tender tints which the white of zinc and the oil prepared with manganese give with great facility and in infinite variety.

Fourth: an important consideration.—By the employment of the new colours a great economy of time and money is obtained.

Experience has fully proved that if we compare the quantity of white lead with the white of zinc, or the quantities of oil necessary to prepare these two substances, the advantage of at least thirty per cent., is in favour of the white of zinc, which covers better with equal weight.

The application of the white zinc is as easy and requires no particular care.

The white of zinc dries in a shorter time.

There is then, *economy* in the cost of the primary material; *economy* in the quantity necessary to produce a given effect; *economy*, incalculable, in the durability; and *economy*, no less remarkable, in the quality of being easily cleaned and restored to original purity with fresh water!

We have spoken freely and earnestly on this subject, because, first, it is a question concerning one of the largest and most important branches of industry in the civilized world; and, secondly, a brilliant scientific discovery successfully introduced by long years of labour and constant sacrifice which were necessary to triumph over culpable indifference, blind routine and irrational opposition.

Now the truth begins to triumph. We have seen more than sixty certificates of our most renowned painters and architects, who have fully tested the discovery of Mr. Leclaire, and confirm all his assertions respecting its advantages. In place of a deadly substance there is given to the world a new material, which with the advantages of beauty, durability, economy, &c., has no dangerous effect in its preparation or use. It is a great conquest of science.

We learn that Mr. Leclaire has received the decoration of the Legion of Honor. Never was a distinction more gloriously and meritoriously earned.

GRANDFATHER WHITEHEAD'S

LECTURES TO LITTLE-FOLK.

(From the *Family Friend*, a little English monthly periodical of very great merit.)

LECTURE I.

My Dear Boys and Girls—I intend giving you some very pleasing and instructive lectures. I wish you to love knowledge and virtue, because thereby you will be made happy and prosperous in your future lives. I hope to come to you frequently and to tell you, upon each occasion, something that it will please you much to understand. In these days, it is very bad for any one to be without knowledge. There was a time when there were no books, no paper, no pens, or ink; things now brought to light were then unknown; people used to believe in false gods, worshipped wooden images, and were in great dread of wicked spirits, which they supposed to exist. They had no comfortable houses wherein to dwell; no glass to admit the light, yet shut out the wind and rain; they had no proper fire-places, with chimneys to carry away the smoke, but used to live more in the style of the gipsey tribes, roaming from place to place, having no one dear spot to call home. They were in danger of wild beasts—in our country there were many wolves, which are animals, something like dogs, but very wild, hungry, and fierce; these often used to kill the beasts which people desired to keep for food, and sometimes they used to kill and eat the people themselves. The people, too, were rude, and very cruel, and instead of loving one another, they used to quarrel, fight, and kill each other; and they used to do this because they were ignorant; they knew not what it was good and profitable for them to do. But now we enjoy peace. We may go to bed at night without fear of being robbed by men, or devoured by wild animals. And although there are some wicked men now, who do their fellow-creatures wrong, they are comparatively very few, and are ignorant and idle men, something like those of old; they do not love the knowledge and virtue which I wish you to prize, and therefore they are disobedient to God, and bad towards their fellow-creatures.

I am not intending to give you a long lecture now; but merely a few words of introduction and promise as to what your Grandfather Whitehead hopes to do in the future. I know that this is your holiday time—that you love your holidays, and ought to have them. I know how much you delight to come home with your parents—to enjoy your family parties—to meet with your uncles and aunts, and cousins and companions, and talk about the merry Christmas and the New Year, and to sit by the fireside and tell anecdotes, and ask riddles, and try puzzles, and enjoy the fun of amusing conversation cards! And then the nice things which are about at Christmas!—the cakes—the puddings—the roast-beef, and the geese! These are all welcome things, and serve to make the time pleasant both to old and young.

But hereafter, when the pudding and the cake are gone, and the time comes for reading and learning, then I hope to tell you many things on what is called Science, and to explain to you how many wonderful inventions have been brought about, and how they are carried on. In the old times the people living in different places could seldom see or hear from each other; and if they travelled fifty miles it took them a long time of weary and often dangerous exertion. But now, the wonderful inventions

of science have enabled us to travel as fast as a bird can fly, with nothing to do but to sit down cheerfully and easily, and glance at the trees and rivers, hills and dales, as we pass along. So wonderful are these discoveries, that instead of waiting a fortnight or a week for a letter sent from London to Edinburgh, a person may now send a message to or from these cities, and receive an answer in as many minutes as were formerly required days. Think of messages being sent hundreds of miles, and an answer returned, while a person waits no longer than a little boy might do who had taken a letter to a gentleman's house, and was told to wait for an answer. Yet this is really done—not by any magic, or mystery, but by the study of God's works, and by conformity to his laws. And this makes it all the more delightful, that whilst man studies and enquires, God is willingly disclosing these delightful means, and putting it into the heart and mind of man to apply them for good and useful purposes.

Sometimes a friend is invited from afar off—perhaps he has to travel sixty miles. Well, he may be told that dinner will be on the table at two o'clock. The cook begins to get the nice things ready. Still the expected friend has not started on his journey—perhaps he is sitting down reading the newspapers. The cook actually goes on preparing the dish of which he is to eat, and after she has been thus engaged for some time, he goes quietly and takes his seat in a carriage, rides the whole of the sixty miles, and knocks at the door just as the cook begins to think the dinner nicely done, and wishes the gentleman had arrived. This *is* wonderful. And I wish you not merely to understand that it *is* so—but *how it is managed*—who discovered it, who improved upon the first discovery—and how, and when, and where, it was first applied; so that you may have plenty to think and talk about, and that you may feel what a pleasant thing it is to live in a time free from trouble and dangers, and with so many blessings and privileges around you.

Some years ago, people used to employ for lights at night, great torches, with a flickering, smoking flame, and suffocating vapours; next came candles and lanterns, with their dim and uncertain rays; then came gas, which was considered a wonderful discovery, and has enabled us to have our shops and streets lit up long after the sun has gone down. But now a new discovery—the electric light—is to be tried, and it is very likely that ere long our streets and houses may be almost as light by night as in the day. And instead of lamp-lighters running about our streets with noisy boys after them, first lighting one corner, and then another, it is likely that *a whole town may be lit up at once*, and as this will take place before sunset, if this plan succeeds, there will be scarcely any darkness in large towns. What is more astonishing, is, that this light will endure under water—so that if it were necessary to have lights under water, as it might be in mining, or in making breakwaters, or piers, or harbours, it would be quite possible to do so.

These, then, dear Boys and Girls, are wonders which Grandfather Whitehead intends to lecture you about. I intend to speak in plain and pleasant words, so that you may not be puzzled by difficult terms; and when I think it will help you to understand the subject, I will present a pretty little picture to show you how a machine is constructed, or how an experiment may be performed.

Besides, I wish you to study these things, that you may try in your turn to discover useful things to do good to your fellow-creatures. For as others have laboured and done good for you, you should delight to labour for the good of others. Watt, who discovered the steam-engine, Harvey, who discovered the circulation of the blood; Newton, the great astronomer; Sir Humphrey Davy, the great chemist; Howard and Wilberforce, the kind-hearted, good men, were once playful boys like you, and knew but little; they turned their minds to good pursuits, and became wise and good men, and did much for the well-being of their fellow-creatures. Mrs. Hemans, Mrs. Barbauld, Mrs. Fry, and other good and clever ladies, were once girls with very little knowledge, but they strove for it, and gained it, and became great and good. And so may you, my dear Boys and Girls, if you will but try. Grandfather Whitehead will endeavour to lead you on. I have spoken (I must tell you,) to your Aunt Mary, and she has consented to give you some interesting lectures upon History—about the rude times and people I have hinted at—and many pretty anecdotes she will have to tell. Therefore, I hope you will give your Aunt Mary and me your attention, and we shall do our best to induce you to love knowledge and virtue.

[At the conclusion of Grandfather Whitehead's introductory lecture, the boys and girls all clapped their hands, saying, "God bless you, Grandfather Whitehead!"]

Curiosities of Science—Geological Changes of our own Time.—Lyell, Darwin and others, have lately collected and powerfully applied a curious class of facts, to show the slow and continuous upheaving or depression of large tracts of land, in different parts of the world, in effect of subterranean changes going on underneath. The phenomenon belongs to our own time, as well as to anterior ages in the history of the globe. In Sweden, for instance, a line traverses the southern part of that kingdom from the Baltic to the Cattegat, to the north of which, even as far as the North Cape of Europe, there is evidence, scarcely disputable in kind, that the land is gradually rising at the average of nearly four feet in a century: while to the south of this axial line, there are similar proofs of a slow subsidence of surface in relation to the adjacent seas.—This, and various other examples of what may be termed secular changes of elevation, particularly in South America, amidst the great coral foundations of the Indian and Pacific Oceans, have led the eminent geologists just named to regard such slow progressive changes as the probable cause of many or most of those great aspects ot the earth's surface, which by others have been attributed to paroxysmal actions of subterranean forces, sudden and violent in kind.

To Black Grates and Stoves.—Mix a gill of stale beer and two ounces of black lead together; add a piece of common soda, the size of a nut. Having removed all soot and ash dust from the grate, rub it over with the mixture. Take a hard brush and rub it well; a great brilliancy will soon be produced.

A Cheap Filter for Water.—A very simple means exists, by which any poor family may filter all the water required, viz., by using a large pan or tub as the tank, and filtering the water (by ascension) through a sponge stuffed into the hole in the bottom of flower-pots, using two pots, the lower one being half filled with charcoal, and loosely covered with thin flannel, the upper one placed in it so as to sink the flannel with it, and then secured by a string; nothing can be more simple, nor more easily cleansed.—*The Builder.*

Hens Eating their Eggs.—Hens, it is well known, when kept shut up, are very apt to eat their eggs. The best preventive is to keep them well supplied with lime and gravel, and with *meat* in some form. The nests should be so deep in the boxes, that they cannot reach them while standing on the edge.

Boiling Potatoes.—The correspondent of the London Times says:—"The following method of dressing potatoes will be found of great use when skins are tough and potatoes are watery. Score the skin of the potatoe with a knife lengthwise and across, quite around, and then boil the potatoe in plenty of water and salt, with the skin on. The skin readily cracks when it is scored, and lets out the moisture, which otherwise renders the potatoe soapy and wet. The improvement to bad potatoes by this method of boiling them is very great; and all who have tried it, find a great advantage in it, now that good potatoes are very difficult to be obtained.

Nocturnal Life of Wild Animals.—Below the mission of Santara Barbara de Arichuna we passed the night as usual, under the open sky, on a sandy flat on the bank of the Rio Apure closely bordered by the impenetrable forest. It was not without difficulty that we succeeded in finding dry wood to kindle the fire with which it is always customary in that country to surround a bivouac, in order to guard against the attacks of the jagur. The night was humid, mild, and moonlight. Several crocodiles approached the shore; I think I have observed these animals to be attracted by fire, like our cray-fish and many other inhabitants of the water. The oars of our boat were placed upright and carefully driven into the ground, to form poles from which our hammocks could be suspended. Deep stillness prevailed; only from time to time we heard the blowing of the fresh-water dolphins which are peculiar to the Orinoco net-work of rivers [and, according to Colebroke, to the Ganges as far as Benares], which followed each other in long lines. Soon after eleven o'clock such a disturbance began to be heard in the adjoining forest, that for the remainder of the night all sleep was impossible. The wild cries of animals appeared to rage throughout the forest. Among the many voices which resounded together, the Indians could only recognise those which, after a short pause in the general uproar were first heard singly. There was the monotonous howling of the aluates [the howling monkeys]; the plaintive, soft, and almost flute-like tones of the small sapajous; the snorting grumblings of the striped nocturnal monkey [the Nyetipithicus trivirgatus, which I was the first to describe]; the interrupted cries of the great tiger, the cougor or maneless America lion, the peccary, the sloth, and a host of parrots, of parraquos, and other pheasant-like birds. When the tigers came near the edge of the forest, our dog, which had before barked incessantly, came howling to seek refuge under our hammocks. Sometimes the cry of the tiger was heard to proceed from amidst the high branches of a tree, and was in such cases always accompanied by the plaintive piping of the monkeys, who were seeking to escape from the unwonted pursuit. If one asks the Indians why this incessant noise and disturbance arises on particular nights, they answer, with a smile, that "the animals are rejoicing in the bright moonlight, and keeping the feast of the full moon." To me it appeared that the scene had originated in some accidental combat, and that hence the disturbance had spread to other animals, and thus the noise had increased more and more. The jaguar pursues the peccaries and tapies, and these, pressing against each other in their flight, break through the interwoven tree-like shrubs which impede their escape; the apes on the tops of the trees, being frightened by the crash, join their cries to those of the larger animals, this arouses the tribes of birds, who build their nests in communities, and thus the whole animal world becomes in a state of commotion. Longer experience taught us that it is by no means always the celebration of the brightness of the moon which disturbs the repose of the woods; we witnessed the same occurrence repeatedly, and found that the voices were loudest during violent falls of rain, or when, with loud peals of thunder the flashing lightning illuminated the deep recesses of the forest. The good-natured Franciscan monk, who, although he had been suffering for several months from fever, accompanied us through the Cataracts of Atures and Maypures to San Calos on the Rio Negro, and to the Brazilian boundary, used to say, when fearful on the closing in of night that there might be a thunder-storm, "May Heaven grant a quiet night both to us and the wild beast of the forest!"—*Humboldt's Aspects of Nature.*

Lampas.—The brutal custom of the farrier, who scars and burns down the bars of the mouth with a red-hot iron, is most objectionable; it is torture to no purpose, rendering that part callous on the delicate sensibility of which all the pleasure and safety of riding and driving depend. It may be prudent, in case of Lampas, to examine the grinders, and particularly the tushes, in order to ascertain whether either of them is making its way through the gum, and if so, two incisions, across each other, should be made on the tooth, which will afford immediate relief. In the majority of cases, no surgical operation is necessary; in others, a few slight incisions across the bars, with a lancet or penknife, may allay the inflammation, and cause the swelling to subside.

The Terror of Thunder.—Timid people are subject to alarm at a clap or roar of thunder, when, in reality (despite the saying that "man has too high an opinion of himself who is afraid only of thunder and earthquakes") *thunder is harmless:* it is only the martial music of heaven, vaulting over us, the fear-inspiring tones proportioned so truly to the terribleness of the most dreadful war-weapon, lightning! It remains for some future chemist to develope better information than we now possess concerning the relations of electricity, and its twin (more subtle) element, galvanism, to vital economy, both animal and vegetable; but, in the mean time, it has to be thoroughly believed and acted upon, that man has power over this fluid, to control it, and that its mischief is in no instance of heaven's ordaining, but because, notwithstanding its fugitive track has no definable point, people will not understand how they may get out of its way; and one or another object comes within its reach, forming the chiefest *attraction.* They act cautiously who allow the freest possible access of air into their rooms during the prevalence of a thunder storm.

USEFUL RECEIPTS.

Lime Liniment for Burns, Scalds, &c.—Linseed or common olive oil and lime water, equal parts; to be shaken up together every time of use, for scrofula and syphilitic sores, and still more for burns and scalds.

To Cure Hiccough, or Hiccup.—This spasm is caused by flatulency, indigestion, and acidity. It may be relieved generally by a sudden fright or surprise, or any sudden application of cold, also by swallowing two or three mouthfuls of cold water, by eating a small piece of ice, taking a pinch of snuff, or anything that excites coughing.

Soda Cake.—Take one pound of flour, half a pound of butter, half a pound of sugar, three quarters of a pound of currants, two eggs, a few drops of essence of lemon, and a teaspoonful of carbonate of soda, which should be previously mixed with the flour; the whole to be mixed with half a pint of warm milk.

Editors' Notices, &c.

Provincial Association.—We have much pleasure in observing that the finance committee are at length enabled, by the receipt of the government grant, to meet the outstanding claims against the association. They have announced their intention of paying the Hamilton premiums on Wednesday, January 16th, at the Farmers' Arms, in Toronto, and on the following Wednesday, the 23d instant, at the City Hotel, in Hamilton. All parties having claims must attend personally, or by properly authorized deputy. Persons having claims for premiums, at Kingston, should apply to the local treasurer there, Wm. Ferguson, Esq. We hope this valuable institution will now get free of debt, and that by judicious management, and the liberal support of the legislature and the public, it will continue to keep so.

Gold Medal for Canadian Ingenuity.—His Excellency the Governor General has, with his wonted discriminating liberality, offered through the Toronto Mechanics' Institute, a gold medal for the best specimen of mechanical ingenuity, open to the whole province. Any article, we understand, coming within the wide range of practical mechanics will be considered within the scope of the competition. Ingenuity in the design, as well as skill in the execution, is to be regarded in the decision. Full particulars, we presume, will shortly be made public.

W. B.—We shall receive your proffered assistance with thanks. Our limits require that all articles should be short. When a subject requires more length for its treatment, it may be broken up into parts. We find it necessary to have *variety* in our pages.

T. H. S.—Thanks for your suggestion, and more for the interest you evince in the circulation of our paper. If every township had but one or two that could catch a portion of your spirit, our enterprise would soon be remunerating to ourselves, and of ten fold value to the country.

A Young Farmer, Markham—Will find several things serviceable to him in Mr. Dougall's valuable paper in the present number; and in our volume for 1849, he will meet with some excellent advice from our Canadian horticultural correspondents. We can now only say, don't plant fruit trees on low wet land; choose high ground, and if the soil contain lime, or rest on a gravelly limestone, so much the better. The ground well drained and prepared, the trees properly selected and planted, and afterwards *carefully protected*, manured and pruned, success may with certainty be depended on.

To Correspondents.—There is no occasion to acknowledge, through the paper, the receipt of letters containing merely an order and price of subscription. It would consume a large space to do so, in every case, and as we send no paper unless ordered and *paid* for, the fact of its receipt will sufficiently show that the letter has reached this office. Where any thing special requires notice, we will refer to it in this place.

Our Illustrated Prospectus.—We send to each of our subscribers a copy of this prospectus. Will they do us the favour to cause it to be put up in the nearest tavern, store, or other place of public resort? We have already sent three copies to each Post Master in Canada, and paid the postage thereon. Will they also be kind enough to place them where they may be seen?

THE FARMER'S PAPER

THE CANADIAN AGRICULTURIST;

The best and cheapest Farmer's paper published in Canada, and the only one now published in Upper Canada.

The second volume of the Agriculturist in its present form commences January, 1850. It is issued monthly, and contains 24 pages, double columns, imperial octavo. During the present year, the advertising sheet will be dispensed with. It will contain numerous illustrations of Machines and Farm Implements, Farm Houses and Cottages, &c., Plans for School Houses, and Diagrams in explanation of questions in mechanical science, and natural philosophy.

Great care will be taken in the selection of matter, whether relating to Agriculture, Horticulture, Mechanics, Domestic Economy, Education, or general Science. Several intelligent practical farmers and gardeners have promised correspondence, and the editors will be happy to receive communications from all their subscribers. Such as are of interest will be freely published. Two or three gentlemen of high scientific attainments [one of whom is connected with the University,] have agreed to contribute to the columns of the Agriculturist.

Farmers, subscribe and pay for your paper, and then write for it: all parties will thus be pleased and benefited.

The Agriculturist is devoted to the development and advancement of the real interests of Canada. Much good has already been done by this paper, and those which preceded it, and of which it is a continuation. But the proprietors of the *Cultivator*, and the other papers alluded to, suffered great loss; and the proprietors of the Agriculturist have, so far, been out of pocket, besides the time, labour and anxiety spent in its publication. Is the reproach that the farmers of Canada will not support an agricultural paper of any kind, to continue? We hope not. Let those who love their country, and desire its improvement, make a little more effort this year, and the reproach may be wiped out forever,

As an inducement to extra exertion, we offer the following Premiums:

One Hundred Dollars!
Seventy-five Dollars!
Fifty Dollars?

Every person who will procure 200 subscribers for the Agriculturist, at the subscription price of one dollar, and remit the money at the time of ordering the paper will be paid $100; for 160 subscribers, $75; for 120 ditto, $50; for 75 ditto, $30; for 60 ditto, $25.

Agricultural Societies, and those persons who obtain the paper through their society, are excluded from the above. As we have no travelling agents, the offers are open, and accessible to all, with the exception just mentioned. No papers will be sent unless the subscription accompanies the order, until the smallest number [60] is realized: after that *one-half* the price may be retained by the competitor, till the completion of the list which he intends to forward. Who will try? Where is the township in Canada West, in which no young man can be found willing to spend two or three weeks this winter to win at least the $25 prize?

Agricultural Societies ordering 25 copies and upwards, will be supplied at half a dollar; twelve copies and upwards, 3s. 9d. Single subscriptions, one dollar. Local Agents, who will procure over three subscribers, and remit us the subscription, free of postage, will be allowed 25 per cent.

George Buckland, Secretary Agricultural Association, *Principal Editor*, assisted by William McDougall, *Proprietor*.

All letters should be post-paid, and addressed "To the Editors of the Agriculturist, Toronto."

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, WILLIAM McDOUGALL, } Editors and Proprietors.

VOL. II. TORONTO, FEBRUARY, 1850. No. 2.

The Canadian Agriculturist,

Published Monthly, at Toronto, C. W.

TERMS.

One Dollar a-Year, in Advance.

Twelve copies, for one year ..... 3*s.* 9*d.* each.

To Clubs and Societies,

Twenty-five copies and upwards....half-a-dollar each.

New Subscribers can be furnished with back numbers for 1848 and 1849.

Bound Volumes, for 1849, will be supplied for 5*s.*, delivered at our office.

All remittances should be forwarded to William McDougall, Proprietor, Toronto.

Letters are expected to be post-paid.

Increase of Fertility from shading the Soil. — Every observing person, says the *American Agriculturist*, must have noticed the unusual productiveness of soil which has been closely protected for a time. The earth under a building, the northerly side of a wall or large log, is itself a valuable manure. How is this result or change in the character of the soil produced? Will some of our scientific readers explain?

We know that such earth contains large quantities of nitrate of potash (saltpetre,) and nitrate of ammonia, and it is frequently used for extracting saltpetre in the manufacture of gunpowder. Does it not contain other salts, absorbed from the atmosphere, and developed in the soil, in consequence of its pecular position, all of which are highly favourable to the growth of vegetation? And how can this result be made of practical benefit to agriculture? We have heard much of the beneficial effects of *Gurneyism* (covering meadows and pastures with straw, or refuse vegetables.) Has this been tried, and with what result in this country?

Feeding Qualities of Pigs.—A correspondent informs us, he bought, in September, two Berkshire pigs, six weeks old. He kept them in a warm pen, and gave them the slops from a small family, intending them for breeding. On looking at them, the last of winter, he found them too fat for breeding, and accordingly slaughtered them, at eight months old, when one was found to weigh 240 lbs., and the other 278 lbs., dressed.

Another says, a sow, mostly Berkshire, was butchered on the 9th of January last, in Conn., at precisely a year old, and dressed 553 lbs. A neighbour has just slaughtered two swine, at about fourteen months old, both kept together and fattened in the same pen. One dressed 478 lbs; the other 274 lbs. The lightest had eaten much more than the heaviest, and when the last had filled himself from the trough, the other, though eating faster than his chum, was always on hand for the remaining food; a very coarse brute, too. So much for breed.—*American Agriculturist.*

Pithy Hints.—Snuff on the necks and backs of calves and young cattle, will do more good than in the nose of any maiden lady or dandy batchelor; and brimstone, bought for the hogs, will not prove that the itch has got into the house. Cards, on the cattle, make them look as much better as children with their hair combed. A clean barn is a hint to the woman who takes care of the kitchen. Good milking stools save much washing in the house. A scraper on the door-step, saves brooms and dust.

HINTS IN SEASON.

Nothing can be more erroneous or prejudicial, than the prevalent idea, that in winter the farmer has little or nothing to do. It is true that in Canada, as in most countries of the temperate zone, his labours are neither so numerous nor pressing at this season of the year, as they are from the period of depositing the seed to the gathering in of the harvest. A certain amount of freedom is now enjoyed, from the anxious cares and labours incident to the field, and a portion of leisure is possessed, which every intelligent and enterprising farmer will gladly embrace, for the culture and discipline of his mind. There is reason to fear, that the mental energies of our farming population are allowed to partake too largely of that rest which is now enjoyed by the body; a circumstance that will, so long as it is permitted to exist, keep the farmers of this country from occupying that useful and honourable position in the social and political scale, to which they have otherwise a first and most indisputable claim. Books are now easily procurable on all subjects, and our own language is already rich in an agricultural literature, whose treasures every aspiring young farmer will gladly strive to make his own. Our first hint, then, to our readers, includes the duty and happiness of *improving the mind*, as well as the soil; for between the two, there is an intimate and indissoluble connection. The farmer must study to acquire the invaluable habit of thinking deeply and observing correctly, ere he can have the least chance of comprehending and advancing the principles of his important art. He must think, as well as work. Between a taste for books, a desire for social usefulness and distinction, a comprehension of the great forces which regulate the varied phenomena of nature; or, in other words, between the instruments of thought and physical research, and the guidance of the plough, we aver that there is no natural incompatibility. There is no occupation of life, in which the body and mind of man can be subjected to a salutary discipline, beyond that of the husbandman—the most essential and time-hallowed of all pursuits. What a pity it is that so many remain blind to these advantages!

At this season, the utmost attention should be paid to all kinds of live stock: the loss which the farmer sustains, from even a slight neglect of this matter, is certain to be considerable. It too frequently happens, that sufficient time is not given to the care of stock; and for this no excuse whatever can be urged in winter. All animals require, not only to be well sheltered from the pitiless cold and storms of these inclement regions, but they should be kept perfectly clean, by carefully removing their excrements, and bountifully supplying them with straw for bedding. Regularity in feeding is of primary importance, and a *mixture* of food will be found highly advantageous. Hay cut up with various kinds of straw, or corn stalks, and sprinkled occasionally with a little salt, will be better relished by animals, than when given separately; besides, the practice of cutting and mixing is far more economical. If farmers would but attend properly to these matters, and tend and feed their cattle with humane attention and punctuality, they would be spared in the spring the too frequently distressing spectacle of half-starved, miserable-looking animals; and their pockets too would derive a proportionate benefit. A slight acquaintance, even, with the laws and principal facts of animal physiology—such as any intelligent young man might easily make, by devoting to that study a small portion of the long evenings of a single winter—would materially elevate his condition and qualifications as a farmer.

It is of the greatest importance, that every preparation should now be made, with reference to the approaching busy season of spring. Firewood should be procured sufficient for the wants of the year; rails split and got in readiness for repairing fences, immediately after the melting of the snow, and before the ground is in a condition for ploughing, when the pressing operations of cultivation will engross the whole time of the farmer. Manure may be taken to the more distant parts of the farm, when the weather will admit; it should be put into heaps, and well secured against the action of air and rain. Ploughs, harrows, and all other kinds of implements, should be carefully examined and repaired. In a word, everything should be got in readiness, and the plans of operation for the approaching active agricultural season well considered and determined. In this climate particularly, where the season for preparing the seed bed is so short, the appropriate work of winter ought to be thoroughly finished, before the auspicious season of spring arrives. To this end, both thought and energy are required.

Sugar making, on many farms in Canada, is a matter of economical importance; and now is the time to make the necessary preparations Let buckets, boiling shed, and whatever else is required, be got in readiness; that as soon as the genial influence of the sun puts the vegetable juices into motion, the majestic maple, the beauty and monarch of our forests, may be made to contribute to the multifarious wants of man. As the climate of this country is evidently undergoing very considerable modification, the sugar season will consequently become more irregular, as compared with past experience; hence the desirableness of being duly prepared, that the business may be prosecuted with despatch, and not a day be lost. There are few farmers possessing any sort of a sugar-bush, but might manage to procure enough of that necessary article for their domestic use, and in favourable seasons have considerable to spare. By a little extraordinary attention and trouble in boiling and refining, this article, which is sometimes objected to on account of colour and impurity, may be made as clear and white as most of the better imported qualities. We have seen most excellent samples at the Provincial and other shows, which were as agreeable to the taste as they were attractive to the eye. To such as have little or no maple on their farms, we would strongly recommend the planting of that tree, for the twofold purpose of ornament and utility. It bears transplanting well; an operation, however, that should never be deferred till late in the spring, an

error too frequently committed in all kinds of planting. Maples set out by the road side, or in the fences of fields, are not only highly ornamental, and afford alike to man and beast both shade and shelter, but they yield a larger amount of sugar than the trees which are confined to the forest.

SPIRIT OF THE AGRICULTURAL PRESS.

Rev. Mr. Huxtable's Farm.—We observe from English papers of recent date, that Sir Robert Peel had paid a visit to this clerical and renowned agriculturist. The secret of Mr. Huxtable's success lies in deep and perfectly clean culture, in the growth of large quantities of root crops, and in keeping great numbers of sheep and cattle. The animals are all tied up—including sheep—in warm and well ventilated stables, and the most perfect arrangements are made for saving the liquid and solid excrements. A steam-engine is made to do the principal work of the establishment; it threshes, winnows and sacks the grain, cuts the straw for the cattle, kiln-dries the corn, grinds it into meal, bruises the beans for the horses, and works a large bone-mill. The right honourable Baronet is said to have been highly gratified with his visit. Although the fact of Mr. Huxtable raising large crops and feeding a great number of animals on a soil of naturally poor quality, is, we believe, undeniable; yet, in fairness to our readers, we must say that the *profitableness* of his system has of late been frequently called in question by several experienced and intelligent farmers. This remark will also apply to Mr. Mechi. We think that all amateur agriculturists, who would have their farm management regarded as a sort of model, are morally bound to exhibit a correct annual balance of their accounts, for the complete satisfaction of the public. Both Mr Huxtable and Mr. Mechi have of late been frequently called on to do this, but we have not heard of their compliance. High farming, or raising large crops at a great expenditure, is one thing; good farming, or raising large crops *with a profit*, is another. It is the latter only to which a man must look who farms for a living.

Importation of Canadian Hops into England.—The English journals per last mail mention, as a novelty, the importation of several bales of hops, shipped from Montreal, and the growth of Canada. A considerable quantity had also been received from the United States, also from Belgium and Holland. The crop in England had proved very short, the duty amounting to only £80,000. As the home grower is subjected to an excise duty of about one pound a cwt.; all foreign hops, including likewise those of colonial growth, are subject to an import duty of £2 5s. per cwt. In years like the present when, owing to the shortness of the crop, the price in England ranges from six to seven pounds a cwt., a moderate exportation may yield a profit, but on an average of years we doubt whether hops, from Canada or from the United States, can be sent to the British Market without a serious loss; that is, so long as the import duty exists.

Immense Fat Hogs.—The *Amherstburg Courier* observes, that a fat hog was recently killed at that place, bred by Mr. Louis Bouise, that amounted to the enormous weight of 763lbs.; the animal being only two years old!

We likewise notice, in the *Long Point Advocate*, that Mr. J. B. Carpenter killed a hog weighing 710lbs! We should like to be informed of the breed of these animals, and the mode in which they were fattened. In many parts of the country too little attention is paid to these matters; the consequence is a coarse kind of animal of stunted growth.

Since writing the above we learn from our excellent contemporary the *Maine Farmer*, that a hog only 14 months old was recently slaughtered in Augusta, weighing 552lbs.! The same paper states the weight of another pig only 10 months old at 410 lbs, which afforded 451bs. of lard. By careful calculation the actual cost of the pork was a fraction short of four cents per pound.

Feeding and Fattening Swine.—The *Massachusetts Ploughman* contains a good practical article on this subject. Hogs should be fatted in the shortest possible time. A good appetite in the animal is the first requisite, and therefore everything should be done to promote it. Give him that which suits his palate best, and he will soon gain a good appetite; put molasses into his food, rather than he should not eat up all clean. Both molasses and sweet apples on many farms cost but little, and they are excellent to mix with pigs' meat. Feed full and with strict punctuality. Ashes containing charred coal, salt, weeds, rotten wood, peat, &c., thrown into the pen, help to quicken the appetite, and promote the health of the animal. The following case is given as an illustration:—

Cost of one pig, 50 lbs. live weight, at 4½ cents per lb, $2.25. 6 Bushels meal fed, up to Sept. 5, at 75 cents, £4.50; 13 do. fed to Dec. 5, when killed, at 78 cents, $10.14; total cost, $16.89. Weight of hog Dec. 6, 411lbs., deduct weight of live pig, 50lbs., net gain over live weight, 361lbs. 411 lbs., at 6½ cents per lb., market price, comes to $26.71. Total cost of feeding, $16.89. Net profit, $9.82. No account is made of skim milk, which on most farms possesses no exchangeable value, and the refuse of many things are consumed by swine that would otherwise be totally wasted. Generally hogs do better together than one alone, provided there be room and accommodation sufficient. They seem to love society, and after a short acquaintance become peaceable and quiet, and attached to each other. The greatest cleanliness should be observed in their management.

London Milk.—It is said that for the supply of the Brittsh Metropolis with this indispensable article, not less than 60,000 cows are required, which yield upwards of 100,000 gallons daily throughout the year! Adulteration is extensively practised in a variety of ways, and many of the animals are kept in dirty and ill-ventilated buildings.

Agriculture in China.—The great secret of farming in China may be comprised in two words,

clean culture. A recent authority asserts that he had seen men imprisoned six months and upwards for allowing weeds to grow upon their land. If such a law existed in Canada how many of our farmers would manage to keep out of gaol after the commencement of spring? The Chinese cultivate entirely by the spade the slopes and tops of the highest hills, and for many square miles scarcely a weed is to be seen. The farmer of China ranks the highest in the community, and is on terms of perfect familiarity with the Emperor.

Canadian Mustard.—In the *Agriculturist* for 1849 we noticed an excellent quality of mustard, grown and manufactured by Messrs. Crawford & Imlach in the Niagara District, and we are glad to hear that the enterprise of these gentlemen has proved so successful. We learned the other day that Mr. Earles of Esquesing has erected a mustard manufactory, and has already produced a good article. He intends sowing 40 acres with mustard seed the approaching spring. There can be no doubt but the soil and climate of this country are well suited to this plant, and that Canada will soon produce enough, not only for domestic consumption, but may have considerable for exportation. There are several new kinds of produce that might be advantageously raised in this country, which we pointed out in our last volume. We saw a few days since some very good canary seed grown by Captain Shaw in the vicinity of Toronto. The true interests of Canada consist in developing the great resources of her extended and productive soil, and the application of her immense water power to purposes of manufactures; the two mutually aid each other.

Reasons for Cutting Fodder for Stock.—The practice of cutting hay, straw, &c., for animals, is found by all who have practised it to possess many advantages, economy being not the least. Much fodder is wasted by the common mode of giving it to stock. The *Boston Cultivator* thus sums up the matter:—

"1st. It can be measured more accurately, giving every one his portion in due season. 2nd, As horses and milch cows must have some grain, their whole mass is sweetened, while they receive their grain in the most proper manner. 4th, The water necessary to unite the particles of grain with the seed, softens the same, making easier mastication. Corn fodder, cut and mixed with shorts or meal, goes off well, nor do the long stalks bother in forking over the manure heap. Your horse, by being fed in this systematic way, with chopped feed, is fit for immediate service; you know what he has had, and what he can do. Great errors have been committed by feeding out hay and solid grain at random, when your horses are foundered by yourselves, although it has been charged upon the smith; while many of our favorite dishes are made better and more palatable by the use of the chopping-knife."

Set the time and keep it.—Keep it punctually—don't vary a hair's breadth. When you say Monday, mean Monday. When you say Tuesday or Wednesday, mean Tuesday or Wednesday. When you say six o'clock, mean six o'clock. When you say twelve, mean twelve—not twelve and a-half, but twelve. Time is precious, infinitely; gold cannot purchase it. Better rob your neighbour of gold, or precious gems, than to rob him of a moment. Set the time and keep it!

THE UNIVERSITY.

AGRICULTURAL PROFESSORSHIP.

The University Bill of last session became law on the 1st of January, 1850, and the Commission has been appointed for remodelling the machinery, determining the number of chairs and professors, and settling the preliminary arrangements for the new and *improved* career of this provincial institution. The views entertained by the proprietor of this journal, on the justice and expediency of establishing a Chair of Agriculture in the chief seat of learning for the youth of this agricultural country, are well known to those who have read the *Agriculturist* for the last two years. Previous to the introduction of the University Bill by Mr. Baldwin, we had several conversations with that gentleman on this point, and we understood from himself that his mind was made up as to the propriety of making provision for the study of agricultural science, along with the other branches usually taught at a university. He did not think a chair of agriculture would, for some time, be of much service in a practical point of view, because it was not likely that, in the present state of the country, many young men who intended to till the soil only, would resort to the University for instruction in the science of their calling. But he felt the necessity of directing the attention of the youth of the country, seeking instruction at this institution, whatever their immediate object might be, to the principles of that art, which is and must continue to be the chief pursuit of the people of Canada. He mentioned, as one important result which he hoped to witness from a chair of agriculture in the University, the elevation of the farmer's profession, and an increased respect among other classes and among themselves for those who till the soil.

After so decided an expression of opinion from the Premier of Canada West, and concurring, as we did, in his views, we certainly expected to see some provision in the Bill, which he was about to submit to parliament, securing the object thus conceded to be of the first importance. No positive provision, however, appears in the act; and we understand it is not the intention of those who have the say in the matter, to recommend a chair of agriculture, or anything of the kind. We trust a less selfish influence than that which evidently led to this conclusion, will be brought to bear upon the visiting Commission, or whatever body has the right to dispose of this question.

Here is a great public school, supported by funds from the public lands, set apart for the purpose. Its ostensible object is to afford the means of instruction in the higher branches of learning, at a cheap rate, to the youth of every class in the country. The *farmers* of Canada as a class, if any one class is to be benefited more than others, are certainly *entitled* to consideration in the arrangements of this institution. It is from them exclusively that the funds are derived which keep it going. The sweat and labour of *farmers* have given the college lands whatever value they possess. They have made roads around them, cleared up the land adjoining, and in many cases suffered

great hardship from the vicinity of these unimproved "reserves." When leased and brought into cultivation, it is the farming class who pay the rent. Besides, this class constitutes at least 75 per cent. of the population of Western Canada; yet, if no provision be made for the encouragement and advancement of agricultural science out of the funds of this institution, the farmers as such will be excluded from its benefits.

There are, we believe, *seven* doctors employed in the University to instruct perhaps twice that number of students. We may be permitted to ask why the medical profession, already a monopoly, should engross six or seven professorships in the Provincial University, and the agriculturists be denied even one? We regard this as a monstrous abuse, and we hope it may soon be corrected. In England, on the Continent, in the United States, the promotion and development of agricultural science has been undertaken by the highest educational institutions. Yale College, one of the oldest and best of the American Colleges, established a chair of agriculture, which has been for some time worthily filled by Professor Norton. We observe that he has just received the prize of $100, offered by the N. Y. State Society for the best elementary work on agriculture, for schools. Besides his lectures, which occupy but a small portion of his time, he analyzes soils, makes various experiments, lectures before agricultural societies, and in a thousand ways diffuses a knowledge of agricultural science, which is of more real practical benefit to the nation at large, than all the Greek and Latin taught by all the colleges in the country. He is enabled to spend his time in this way through his professorship. Other American colleges are following the example of Yale; and it is probable that in a very short time agricultural colleges or institutes, having a regular staff of professors, will be established in several of the states. With us, however, an almost exclusively agricultural people; our lands rapidly wearing out; the markets for our produce limited, and the advantages of protection in the English market no longer extended to us; new modes of cultivation, and new crops to cultivate, rendered necessary by change of climate, diseases of plants, exhaustion of soil, &c., those means which other countries, not pressed by so urgent a necessity, have thought it prudent to adopt, our wise men appear to consider futile and unnecessary.

It may be proper to observe, that these remarks are made by the assistant editor, and not by Mr. Buckland, who was induced to come to this country with the view of becoming a candidate for the Chair which he was told would be established, and who might therefore be suspected of feeling too much personal interest to speak upon the subject without bias.

We quote the following extracts from a speech delivered by a member of the N. Y. Senate at the conclusion of Professor Johnston's lectures in Albany a few days ago. These lectures were attended by the members of the legislature, as well as the farmers in the vicinity. The complimentary allusions to the lecturer, who, as most of our readers know, is professor of agricultural chemistry in the University of Durham, England, and beyond all question the ablest writer of the present day on scientific agriculture, are in very good taste. But the reasons which the Senator gives for establishing an agricultural college, are the points to which we would particularly direct the reader's attention. We may not be able and willing to follow the example of our neighbours, by making so decided a movement at present, but surely the substitution of a professorship of agriculture for one of the expletive medical professorships in our richly endowed University, would be no great sacrifice on behalf of agricultural science.

"When we contemplate, said Mr. Baldwin, the elevated position which the learned professor occupies in his own country, standing, as he does, at the head of a profession which he so much adorns, when we consider how extended, broad and profitable to himself, as well as to others, is the field of his labours, and how great have been the sacrifices, pecuniary and otherwise, which he has made in accepting the invitation of our Society, to deliver its annual address last autumn,, and in remaining here and in this vicinity since that time, to deliver the course of lectures which have just now closed, and to which we have listened with so much profit and delight; and especially, when we reflect upon the *character* of those lectures—the beautiful manner which they have opened to us the great volume of Nature, giving us a glance at its hidden mysteries and treasures—showing us the properties of the earth and the soils, the connection and relation between the earth and the vegetable kingdom, and the connection and relation between that kingdom and the animal creation, with the means of improving each; and, by the knowledge thus imparted, provoked an appetite for more, and leading us by that knowledge, from Nature up to Nature's God, and thereby making us not only better agriculturists, but better men, better citizens, and better christians; in view, sir, of these multiplied and high considerations, I am sure that I but express a common sentiment when I say that we sincerely thank our friend, the learned professor.

And, Mr. President, said Mr. B., if these lectures shall have, as we trust in Heaven they may, the effect of awakening our legislators to a proper sense of their duty in regard to this great interest, and which shall lead them fairly and fully to respond to the recommendations of his Excellency the Governor in his late message—to respond to the recommendations of the Agricultural Committee in their late and able report, on the subject of an Agricultural College and Experimental Farm—to respond fairly and fully to the united voice of their constituency, how deep and enduring will be that obligation on our gratitude.

By the lecture which has just now closed, you have learned that the farming interests in this State are in process of deterioration; that the average of all crops is certainly diminishing; the tables of the products, exhibited by the learned professor, show this; and he also shows us the means by which these products may be increased—by which we may be brought back to the products of a virgin soil.

The learned professor, in his lecture this evening, has also referred us to the products of the fertile soils of our new States, the prairies of the boundless West and which are brought into direct competition with the products of the soil of this State, and by which it appears most evident that we cannot much longer sustain ourselves against this powerful competition. What then sir, is to be done? Why, sir, there is but one thing that *can* be done, and that is, to improve our system of agriculture, and by that system to increase the quantity as well as the quality of our agricultural products. The lights

of experience and of science will enable us to do this. But a knowledge of that experience and science must be acquired; and how can it be so well acquired as at an institution established for that purpose. * * * *

Sir, continued Mr. B., the farmers of New York are not only ready for, but they demand this measure—the ground is already prepared—the loaf is already leavened—for eighteen years at least has it been at work—and what are its fruits? Look, sir, to the general interest awakened on this subject—look to the immense gatherings at your annual fairs—look to the improved condition of stock and agricultural implements; and above all, sir, to the increased circulation of agricultural papers and books, and you will agree with me that the time has come; that the harvest is ripe, and the sickles are ready, and only wait the bidding of the law-making power to commence the work. Yes, sir, the time *has* come, when the farmers of New York, in view of the almost overwhelming competition from the west, are called upon to look at home—to protect their own interests. And how, sir, I repeat, is that interest to be protected, except by the introduction into it of the lights of experience and of science? We have this evening been taught by the learned professor, how one acre can be multiplied into four acres; or in other words, how one acre can, by an improved system of agriculture, be made to yield as much as under our present system four produce.

Now, sir, suppose a proposition were to be submitted to this legislature, by which the agricultural wealth of the State, for an outlay of a few thousand dollars, could be doubled, does any doubt that such proposition would at once be seized upon and adopted by that honourable body? Surely not; and yet for a comparatively small outlay, by adopting the system proposed, that wealth may not only be doubled, but quadrupled. And will not the legislature adopt it; will they not give us an institution where the farmer-boy may be educated—where he may receive, in reference to his calling, such an education as all other classes in this community receive in reference to theirs? In a word, will it longer allow this numerous and highly respectable class of our fellow citizens to be neglected—will the legislature longer allow this great interest, which lies at the foundation of all others, to suffer for the want of that aid which it, and the united voice of an impartial constituency, so loudly and imperiously demand? I trust not, sir, I trust that the legislature will not only give us an agricultural college and experimental farm, but that it will endow it with such ample funds, as to place it upon a strong and permanent basis—a basis which shall alike perpetuate throughout all time to come, the wisdom of this legislature, and the liberality of the State.

FREE TRADE AND BRITISH AGRICULTURE.

We learn from the last arrivals, that the question of Free Trade—or rather the expediency of imposing import duties on foreign grain—was exciting general attention throughout the agricultural districts. Meetings were being held not only in the counties, but in most of the market towns, and the general impression seemed to be decidedly in favour of moderate protection. The condition of all parties connected with the landed interest is represented as one of unprecedented and alarming depression, and little or no hope of improvement is entertained so long as the free-trade policy is persisted in.

On the other hand, Mr. Cobden has held a large meeting at Leeds, and has declared that he will not allow the farmers one farthing's worth of protection again, and no doubt thinks he has set this much vexed question at rest forever. Mr. Cobden assigned as a reason why he had remained so long silent, the contempt which he felt towards his opponents, whom he represented as a very stupid, selfish, and inferior class of people. This clever agitator, we perceive, is also making a stir respecting the management of the Colonies, and Canada appears to have received a share of his attention. Much as promptness and decision are to be admired in the statesman, we yet think that Mr. Cobden's claims to that character would suffer no diminution, if he manifested a little less dogmatism, and evinced a more generous and impartial spirit towards other interests than those which he takes under his own special guardianship. Unhappily, these questions have always been, and it would appear still are, made class questions. In an empire so extensive as the British, abounding in interests so great and complicated, that system of legislation comes best recommended which embraces impartially every interest, and adapts itself under the guiding power of enlightened experience, rather than mere abstract theory, to the ever-changing wants and circumstances of practical life. It is a sad pity that statesmen cannot discuss a purely commercial question, like that of free trade, in that disinterested spirit, and with the calm deliberation, with which all honest seekers after truth approach the consideration of political economy, or the doctrines and principles of moral philosophy; for just in proportion as legislation is guided by high and comprehensive considerations, will a nation be united, contented and prosperous.

We observe that at many of the rent audits in different parts of the United Kingdom, reductions have been made on the last half-year's rent, varying from 10 to 25 per cent. Sir Robert Peel has addressed a circular to his numerous tenantry, intimating his desire to meet the times. The right honourable baronet thinks that the price of grain may be diminished at the present time—from causes apart from free importation—below what it may be fairly reckoned upon on an average of years to come. He accordingly proposes to his tenantry the postponement of any new arrangement till more experience is acquired of the effects of free trade in corn. In the meantime—while Sir Robert distinctly avows his opinion that any attempts to regain protection are utterly hopeless, and that grain, under the new system, in years of scarce harvests at home, can never be high, and that in ordinary years prices will rule low—he proposes devoting 25 per cent. of his rental, when all arrears are paid, to draining and otherwise improving his farms, without any charge upon the respective tenants. He further offers the loan of money, on moderate interest, to such tenants as are enterprising, with sufficient guarantee, either by a long lease or otherwise, that they shall reap the reward of their improvements. Now, while we say that all this is truly honourable to Sir Robert Peel, yet we regard it, in the altered state of things, as nothing more than his duty. Many others, no doubt, will follow the example; but it unfortu-

nately happens that a large proportion of the land-owners are not in a condition to do so. That much distress and ruin will result, for a time, from these fiscal changes, there is unhappily no room to doubt.

Since writing the above, we have learnt that the Canadian Reciprocity Bill has again been brought before the United States Legislature, and informally passed over. It appears not to have been thought even worthy of a discussion.* Of course our neighbours have a perfect right to legislate according to their own convictions of justice and duty. This free trade, however, "all on our side," places us Canadians in a very queer fix. We have little hope, while Cobden rules the ascendant, that the Imperial Parliament will do anything for our interest. We cannot hold out to our readers the expectation that colonial produce will receive any preference over foreign in the home market; and, however discouraging our farming prospects may be in Canada, we believe, after having had pretty ample opportunity of forming a correct judgment, that the condition of such of our farmers at home, whose misfortune it is to cultivate heavy and second-rate soils, with wheat at 40*s.* a quarter, is infinitely worse.

REPORT ON THE STATE OF AGRICULTURE IN THE OTTAWA DISTRICT.

(Concluded from p. 9.)

From C. P. Treadwell, Esq.

(No. 7.) *L'Orignal, Aug.* 20, 1849.

My Dear Sir,—As you have to a considerable extent shewn the practicability of the course adopted by the Roman commonwealth, that seven acres of ground would support a family; may I, without trespassing on your time, request that you will furnish me with a brief statement of your mode of farming, and also with an account of the kinds of crop you raise—your time of sowing and planting, and your opinion on the raising of garden seeds for this northern climate. Any information I may receive from you, I intend to transmit to the Provincial Agricultural Society. Please send me your communication by the 1st of September.

I am, my dear Sir,
Your most obedient servant,
Chas. P. Treadwell.

Mr. Samuel Stephens, West Hawkesbury.

(No. 7.) *Hawkesbury, Sept.*, 1849.

Dear Sir,—In reply to your letter of the 20th August, I beg to state, that in the year 1845, I raised on seven acres of land, 12 tons of hay, 15 bushels oats, 17½ bushels wheat, 20 bushels corn, 20 bushels potatoes, and 4 bushels onions, besides 400 bushels carrots, beets and turnips, mixed. The kinds of beet which I am in the habit of cultivating, are the white beet, the blood beet, and the Bassano beet; and I find that for feeding cattle they are superior to the Swedish turnip by one-fourth. Milch cows that have been fed on beets, give rich and well-tasted milk, and the butter is plentiful, and equal in flavour to that of June. I am of opinion that beans should be harvested before they are thoroughly ripe, and dried under cover. When saved in this way, the straw makes excellent feed for cows and sheep, and is as eagerly sought after as the best hay. I have never used any other manure than that from my barn yard, with the exception of a small quantity of gypsum, which I used in 1845, principally on the hay land. I have during the last three years planted out beets, carrots and turnips with great success. The seed which I have raised has been found to be fully equal to any imported from a foreign market; and I feel justified in saying that seed raised in the country is superior to any brought from a more southern one. This year, I have raised at the rate of 60 bushels of the small eight-rowed corn to an acre. This corn is equally productive; and one decided advantage it has over all others is, its ripening two weeks earlier. This year I planted my corn on the 20th of May, and harvested it on the 1st and 3rd September, it being then sufficiently ripe. My beets, notwithstanding the dry weather, will yield from 800 to 1000 bushels per acre. My hay is a light crop this season. Oats are short in the straw, but the grain is good. I had no wheat sown this year.

I am, Sir, your obedient servant,
Samuel Stevens.

C. P. Treadwell, Esq.

From Mr. Colin Cameron.

(No. 8.) *East Hawkesbury, Sept.*, 1849.

Dear Sir,—My experience in agriculture being very limited, I am unable to say much on the subject. I will, however, endeavour to answer your questions to the best of my ability. The kinds of grain which I have cultivated with the greatest advantage, are wheat and Indian corn. Within the last three years I have harvested on an average 50 bushels of corn and 18 bushels of wheat per acre. My time of sowing wheat is as soon as the frost has left the ground; sowing it before the frost is properly out, causes smut. The quantity of seed I sow on an acre, is 1½ bushels. Corn I plant about the 12th of May, at the rate of eight quarts to the acre. The only manure I use is common barn manure; but one of my neighbours has tried leached ashes on light land, and has found the crop to succeed remarkably well. This year I consider hay a failure, owing to the drought, but generally 2½ tons is the quantity I cut on an acre. My oats commonly produce 50 bushels to the acre. Beans, carrots and beets are what I consider most neglected. Working cattle fed on turnips are subject to disease. I would, however, recommend turnips for stable feeding. Ploughing should not be shallower than five inches; but in this every farmer must be guided by his own experience, as well as in the selection of what kinds of grain he should cultivate.

I am, my dear Sir,
Your most obedient servant,
Colin Cameron.

C. P. Treadwell, Esq., P. A. S. O. D.

* Since this article was put in type information has reached us that the telegraphic account was premature, and that there is yet a chance for the bill to pass.

From Mr. James Cross, Caledonia.

(No. 9.) *Caledonia, Sept.*, 1849.

C. P. Treadwell, Esq.:

Sir,—As our committee have decided on not sending delegates to represent our Society at Kingston, I send you a statement—in accordance with the wish expressed in your circular—of my manner of farming.

I carry on my farms on the rotation system. I sow all kinds of grain, varying the crops according to the seasons, as our seasons have been very changeable, but not sowing two crops of the same kind one year after another on the same piece of land. I plough green sward either in the fall or in the spring. I sow oats, peas, or peas and oats mixed, as soon as the ground is in proper order for seed. I plough the same land again in the fall, and again in the spring, and plant potatoes, corn or turnips for the second crop. I sow spring wheat with grass seed for the third crop. I find this system to be the most remunerative for growing hay and raising stock to make manure, to enable me to carry on my farming operations with advantage. I sow three-months wheat (white chaff) in April, and Black Sea wheat in May. I plant corn and potatoes from 10th to 20th May—ground as well manured as possible; and as one of the experts of the district agricultural society, I find, on careful examination of the different farms, that those farmers who pursue this system have the fewest weeds and the best crops.

I am, Sir, your most obedient,

James Cross.

From Mr. John Hunter.

(No. 10.) *Hawkesbury West, Sept.*, 1849.

Charles P. Treadwell, Esq.:

Sir,—With respect to your agricultural enquiries, I beg to reply to them in accordance with my experience and knowledge.

In the first place, oats are cultivated with the greatest success on my farm. I am of opinion that for spring crops, neither oats nor any other kind of grain should be sown, till the trees have begun to show signs of vegetation. The quantity of seed I put on an acre is as follows:—Oats, 3 bushels; wheat, 1¾ bushels; barley, 2 bushels; potatoes, 13 bushels; peas, 2½ bushels; hayseed, 12 quarts. The kind of manure I use is barnyard manure; but I prefer black muck to any I have tried, on account of its durability and aptness to produce good crops. Hay this season is light, but the quantity I generally cut averages yearly about 12 tons. That which I consider most neglected is hay; for if the meadows were covered with manure or muck, they would yield double the quantity, and of better quality than they now do in their present neglected state. I think that if some scientific agriculturist would come forward and deliver before each agricultural society, a lecture on the utility of good husbandry; or if agricultural schools could be established in every district, it would confer an advantage of no small importance to the farming community.

I have the honour to be, Sir,

Your most obedient,

John Hunter.

From Mr. Peter Hickey.

(No. 11.) *Hawkesbury, Sept.*, 1849.

C. P. Treadwell, Esq.:

Sir,—In answer to your circular, I have to inform you that I have raised 30 bushels of wheat per acre, sown on the 1st of May; 50 bushels oats per acre, sown on the 20th May; from 40 to 50 bushels corn, planted on the 10th May; 450 bushels potatoes, planted 20th May; hay, 2½ tons per acre. As to manure, I have used none but that made in the farm yard; and with good ploughing and hoeing, it is certain to produce a good crop.

I am, dear Sir,

Your most obedient servant,

Peter Hickey.

From Mr. George Hutchinson.

(No. 12.) *Hawkesbury, Sept.*, 1849.

Dear Sir,—In reply to the inquiries in your circular of the 20th August, I would beg to state, that the only kinds of grain I am in the habit of raising, are wheat, oats, and Indian corn. The proper time for sowing Black Sea wheat is, in my opinion, about the 21st of May, and when the land is of a heavy soil, richly manured, and deep and well ploughed, we can get 30 bushels to the acre. The quantity of seed will depend on the nature and quality of the soil, a rich and heavy soil requiring less seed than a poor and light one. In general, it may be stated at from 3 pecks to one bushel and a half per acre. I commonly begin to plant my corn about the 15th of May; and when the land is in what I consider a good state, I can raise a hundred bushels to the acre. Oats, although a light crop this season, generally remunerate me well. I always sow three bushels of good clean seed to the acre; and where the ground is in good order and well manured, I can get from 70 to 100 bushels per acre. I can say little in favour of root crops this year, although I have had great success in other years, having raised at the rate of 1200 bushels of carrots per acre, and 1 bushel potatoes to each single rod of a common drill throughout a large field. The manure that I use is from the horse and cow stables, and my mode of applying it is this:—About the end of March I take the manure to the fields where it is to be used, and place it in heaps. As soon as the snow has disappeared, I scatter it over the ground, and when the land is fit, I plough it down. I then plant or sow my grain on the top, and harrow well. In a short time the roots find their way down. I think, Sir, if we were to cultivate less land, and do it better, we would procure greater crops, and of better quality.

In conclusion, Mr. President, permit me to return you my sincere thanks, as a zealous advocate and liberal supporter of one of the most noble and honourable callings of the human race.

I am, dear Sir,

Your obedient servant,

George Hutchinson.

C. P. Treadwell, Esq.

In closing the Report of the Ottawa District Agricultural Society, I beg to make a few remarks

on the subject. Our district has been well informed as to the operations of the Provincial Agricultural Society; a considerable number of its bills having been sent ro me, and distributed among the committee of the Society and the District Councillors. In remarking on the different letters I have received in answer to nearly forty circulars, more answers were received than I expected, and I hope they contain such information as will repay their perusal. The circulars have elicited in our own district a spirit of enquiry and investigation that will do much good. Should you think them worthy of notice, you are at liberty to send them to the *Canadian Agriculturist* for publication, *pro bono publico*. There may be some sentiments expressed, not fully sanctioned by the Society, as well as some reports that appear contradictory; but the experience and views of all of them, are, I consider, sufficiently entitled to calm consideration. Mr. Higginson's letter, on the establishment of a *Model Farm* in every district, I conceive to be a matter of vital importance, and I hope the Provincial Association will lend its influence to effect this great object. Dr. Everett has shown that he is thoroughly acquainted with the theory of the science of farming. He is also acquainted with its practical operations, as he has the best dairy of its extent in the district, and is demonstrating that the growing of beets, turnips and beans, can be carried on with profit to the farmer. John Pattee, Esq., is a farmer of experience. His letter I have read with much satisfaction, and I think it may convey useful information to others. Elijah Brown, Esq., is one of our most extensive farmers. He has a great deal of practical experience, and has been very successful in his operations. Mr. Pierre Leduc is a French Canadian from Lower Canada, who settled here about thirty-five years ago. From the peculiarity of his land, he has, I believe, been the most extensive wheat grower in our district. He is a man of sound judgment and practical experience. He understands the nature of manure, the advantage of using the Scotch plough, and the economy of the labour-saving threshing mill. Mr. Pierre Daulth, another French Canadian, is a man who has made himself wealthy by industry and economy, and has clearly shown that the low land between L'Orignal and the Springs is capable of producing first-rate crops. Mr. Josiah Marston's letter on horticulture, I feel proud of on his own account, and on account of the district. I am confident, if his life is spared, that he will become one of the first horticulturists in Canada.

Mr. Samuel Stevens has clearly shown that seven acres of land, well cultivated, will support a family.

Mr. Colin Cameron is a good practical farmer; his remarks are worthy of consideration, and his objection to feeding working oxen on turnips should be investigated. Mr. James Cross is one of our most extensive farmers, and his ideas on the rotation system of crops, I am confident are correct, and should be followed. Mr. John Hunter, and Mr. Peter Hickey, are sound practical farmers, whose opinions are well grounded and may be depended on. Mr. George Hutchinson's statements, although large, yet, from knowing him many years, I feel confident are correct. His great crops I consider to be owing to a combination of favourable circumstances. His land is highly improved; he ploughs and sows in the very best time, and his success should be an inducement to every other farmer to do the like.

The Report of the Experts on crops this year is short, but I think it shows that the agriculture of our district is improving.

Manufactories in our district are beginning to be appreciated. The Hawkesbury Mills, belonging to the family of the late Hon. George Hamilton, have been long and well known to the public. This establishment manufactures annually half a million of pine deals, employs 300 men, and circulates yearly a large amount of money for labour and farm produce. There are several other smaller establishments for manufacturing deals. The Hon. Peter McGill has an extensive establishment, consisting of a flouring mill for manufacturing for exportation, as well as for country work; also an oat meal mill, and an oil-cloth manufactory, &c. At the thriving village of Vankleek Hill, Messrs. Wills and Cleaveland have an extensive pearl ashery, at which they make 600 barrels of pearl-ash per year. They have also a manufactory for salæratus, in which they make 2750 boxes of that article, of 100lbs. each, of a superior quality. Mr. Wiltzie Manning has a plough manufactory and foundry, where he makes 200 ploughs. He has lately introduced a new model for the cast iron plough, which bids fair to be a great improvement. Mr. William Dixon, of Longueil, makes as good ploughs as any imported from Scotland. There are many other smaller manufactories that might be mentioned, but it would extend this report too much. L'Orignal at this time has as good a grammar school as there is in the province. It is under the management of Mr. William A. Ross, a teacher whose attainments are of a superior order. The school house is in a healthy situation. Vankleek Hill has also an excellent grammar school, under the direction of Mr. Alexander McNaughton.

In conclusion, I would merely observe that last winter I addressed our members for the district, Major Johnson and Mr. Lyons, and requested them to attach to any agricultural bill before the House, a grant of £50, for each district agricultural society in Upper Canada, for the purpose of purchasing agricultural implements of the most approved kinds, such as ploughs, harrows, drill harrows, double mould-board ploughs, rakes, hoes, spades, shovels, &c. &c., as models to be placed in each Court-house, that every juror and party attending court might see, and bring his mechanic to make the like for himself. I also at the same time asked for a further grant of £50, to purchase an agricultural library, to be attached to every district society. But should Mr. Higginson's plan of a Model Farm be carried, these last suggestions will be unnecessary.

All which is most respectfully submitted.

CHAS. P. TREADWELL,
President O. D. Agricultural Society.

L'Orignal, Ottawa District, Sept. 14, 1849.

To Henry Ruttan, Esq.,
President Agricultural Association, U. C.

THE STATE OF AGRICULTURE IN EUROPE.

An Address delivered before the New York State Agricultural Society, at Syracuse, Sept. 13, 1849, by James F. W. Johnston, F. R. S., S. L. & E.

Mr. Chairman and Gentlemen:—One of the first lessons a European has to learn after he has landed on the shores of this new world, is to dispossess his mind of all those associations, rich and rare, with which the history of past ages has connected the names of remarkable places. In passing through New England it was my fortune to stop at towns and villages called by names long familiar to my ears—the sound of which seemed to say, "in a few hours or minutes you will arrive again at your own home and hearth."

But in travelling from Albany to this place, I have met with people fresh from Troy—I have come through Utica and Rome—and from the lips of children have heard of other mighty cities which our earliest European lessons clothe in the hoar of remote antiquity, and illuminate with the glory of immortal deeds. In the desire thus to connect your new towns with the recollection of famous actions, I would read an admiration of the actions themselves, and secret aspirations after similar renown.

In the old world, I have just left, there exists an ancient Syracuse, rich in all those bounties of heaven, which especially favor the husbandman—a genial and sunny clime—clear, blue skies, balmy air and never failing dews—a soil fertile in oil and wine, and abundant in corn, almost beyond belief.

Thousands of years ago, when no Saxon or Celtic foot, not even that of the roving Northmen, had yet trodden the American shores, this ancient Syracuse was the capital of a kingdom of six millions of souls; and though it had so many mouths of its own to fill, the produce of its teeming soil left still a large surplus for exportation. An energetic people, comparatively free—unbroken in spirit by frequent wars, by foreign conquerors, and by the degradation and oppression which afterwards beset their domestic hearths—availed themselves to the utmost of the bounties of nature, and by patient industry made their country the "*horreum Romanorum*," and in the language of Livy, "*populo Romano, pace ac bello fidissimum annonæ subsidium.*" Now cast down and degraded, the successors—scarcely to be called the sons of the same people—languish in comparative indolence; and though the bounties of nature are ever fresh and new as in its palmiest days, there are few countries in which agriculture and the arts of life are in a more debased condition than in modern Sicily.

But time, which has wrought this melancholy change, has caused others more cheering to happen too. It may be, that amid the ruins of old Syracuse its ancient fires still live, on some future day to be lighted up anew, and more successfully, into a steady and enduring flame, which the foot of despotism shall never again be able to trample out. But however this be, it is gratifying to me to see—as it must be to you—that in a new country, peopled by a new race, a younger Syracuse has sprung up, emulous of the worth and glory of the ancient—nourished by free institutions—carried forward by the untiring energy of Tuetonic blood—above all, emulous of the agricultural renown of the Syracuse of distant times, and by the application of more mind and knowledge, to a less exuberant soil in a less favored clime, bent on creating a new granary of the nations, an unfailing western store house to a great and growing people.

It is a happy omen to me, coming among you for the first time, that I should meet with you to discourse upon scientific agriculture, in a city which recalls the vast fertility of the plains and slopes of Sicily—may the modern like the ancient, descend to after times, associated with ideas of rich cultivation and prolific fields of corn! —It is not without anxiety, as you will suppose, that I appear for the first time before a large trans-atlantic audience. But though you are American born, gentlemen, your faces are familiar to me. They tell me you have Scotch and English hearts, and I believe I may throw myself confidently on your kind indulgence.

I cannot presume to address you on the general importance of agriculture; its fundamental connection with the welfare and power of every state; the estimation in which it has been held in all ages and among every cultivated people; the natural proneness of man to till the soil; the pleasure with which the most talented men, and the highest in station, have always looked forward to the time when leaving business and profession and the cares of office to younger men, the small farm should alone employ their quiet leisure; nor upon the greater attention and respect which this art and its cultivators now every where demand, and are every where receiving. These topics are familiar to you, and you are too rich in native talent to require a stranger to address you on generalities like these.

Nor does my very recent arrival in the United States, entitle me as yet to speak from my own observation upon the existing condition of agriculture on this side of the Atlantic. I have selected, therefore, as the subject of my present address, the existing condition of Agriculture in Europe.

There are two very different ways in which I might bring this subject before you. I might illustrate in the abstract, the amount of practical and scientific knowledge which Europe possesses in regard to each of the departments of rural economy, which its climate enables it to prosecute. Taking the methods of the best practical men, and adding to these the knowledge of those most skilful in theory, I might present to you a picture every detail of which was true, but the effect of which as a whole, would be to convey to you a most exaggerated idea of the actual condition of the art—even in Great Britain, where both in theory and practice it is supposed to be best understood, and most skilfully carried into operation. Or I might take you from country to country, and show you as we passed hastily along, the character of its rural population, the excellences or defects of its cultural practices, the condition of its arable soils, the qualities and treatment of its cattle, and generally what is doing by governments and people in each country for the improvement of the rural arts. I should thus set before you a series of pictures, true, not only in detail, but in their general effects upon your minds, though not partaking of those broad and comprehensive views, which a sketch of European Agriculture, as one whole, would be expected to present.

I propose to some extent, to follow both methods. After a brief outline of the state of practical agriculture in the leading countries of Europe, derived chiefly from my own observations, I shall endeavor to give you an idea of the position in which agriculture as an art now stands—of what is doing to advance it—and especially of the aids which science is now lending to the practical economics of rural life.

Sweden.—Commencing in the north of Europe with the Scandinavian peninsula, I would remark, that in Sweden—especially since the accession of the late king, Carl Johan, better known by the name of Bernadotte—much attention has been paid to agriculture. The improvement and increase of the flocks of sheep for the growth of wool, the introduction of better breeds of stock, of newer implements, and of an improved rotation of crops—have successively received much attention; but of late years the great force of the people has been expended on the drainage of the lakes and marshes with which the country is so plentifully studded over. The agricultural societies of the provinces, in conjunction

with the Academy of Agriculture in Stockholm, have devoted much pains to what may be called the arterial drainage of their several districts; and though the more refined method of improvement, known in Great Britain by the name of *thorough drainage*, has not as yet been any where introduced, it is only just to the energy of Sweden to say that no European people, in proportion to its natural resources, has done more during the last twenty years in the reclamation of improveable land from the dominion of overflowing water.

Further advances also are secured by the translation, especially from the English, of the best works on scientific agriculture, under the auspices of the Academy of Agriculture, and by the establishment of agricultural schools and model farms, one of which each province is expected in a few years to possess. Thus in Sweden, as in all other countries, the period of improvement by mechanical means will be succeeded by one of improvement by chemical means—the nature and economical application of which latter means, books and schools will have taught, when the time for more generally applying them shall have come.

Russia.—In Russia, agriculture as a whole is in a very imperfect condition. Here and there, especially in the neighborhood of large towns like Moscow and St. Petersburg, laboriously and skilfully cultivated fields may be seen, while herds of improved Swiss and short horned cattle are carefully reared on the domains of the rich nobility. The Emperor also, who knows well the importance of this art to the strength and prosperity of his dominions, sets an example to his subjects by the efforts he makes to introduce a better system of culture among the serfs on the Imperial estates, by the establishment of schools for the instruction of farmers in art and experimental science, and by the maintenance of model farms upon the appanages of the crown. But Russia, nevertheless, is half a wilderness. Millions of acres of perpetual forest cover rich soils which there are no hands to till. The value of an estate is measured not by the number of acres it contains, but by the number of souls which live upon, cultivate, and are sold along with it. As in the first clearing of a North American wilderness, where land is comparatively worthless, the soil is cropped till it is exhausted, and then new land is subjected to the plough and exhausted in its turn. In no country of the world, with the exception of Northern America, is there so vast a field for the useful emigration of agricultural settlers, as in the mighty Empire of Russia. But language, and religion and political institutions, oppose barriers which the Saxon, and I may say the Teutonic races generally, feel themselves unable to overcome.*

Germany.—In order to obtain a correct opinion of the agriculture of a country, a man must not only view the country with his own eyes, but his eyes must be taught both what to look for, and how to look for it. The reports of travellers who are unskilful in rural matters—the educational institutions of the country itself—and even its agricultural statistics, are all unsafe guides where a really correct appreciation is desired of its true position in reference to this important branch of social economy. This observation is illustrated by the actual condition of the several branches of rural economy when compared with the state of agricultural instruction, and with the attention which has been paid to statistics in the different Kingdoms of Germany, and in France.

Saxony.—In Saxony, a country greatly favored by nature in the character of its soils, the chief attention of the great landholders and of the government, has been long directed to the improvement of the breed of sheep, from which the celebrated Saxon wool is obtained. This Kingdom exhibits generally a very different appearance from the neighboring country of Bavaria. In passing from the latter kingdom to the former, you "seem to pass," says Mr. Royer, "from the desert into the land of promise." "Two-thirds of the rich proprietors in Saxony," he observes, "cultivate their own properties, and have established an order, neatness, and method, which, though far from agricultural perfection, you seek for in vain in France."

Wurtemberg.—In the Kingdom of Wurtemberg, where the instruction at the agricultural school of Hohenheim and elsewhere, is better organized, and at this moment more famed, than in any other part of Germany, and where, in fact, the art of culture as a whole is the farthest advanced, the general cultivation is described by Mr. Royer as being melancholy, and, at a distance from the capital, very different from what the eulogies of authors had led him to suppose.

Bavaria.—In Bavaria we find an imposing array of institutions and means of instruction, specially provided for the rural community, which are fitted to impress the superficial observer with a high idea of its agricultural condition. As in Wurtemberg, there is a central school of agriculture. There are also Chairs of Rural Economy in the Universities, and more than twenty Chairs of Agriculture in the Seminaries and polytechnic schools of the provinces, besides a general Agricultural Society, counting more than 8,000 members. These facts convey the impression of much zeal on the part of the government; much interest in agriculture on the part of the people; and an advanced state of the art of culture in the kingdom generally. But "the miserable aspect of Bavarian Agriculture would lead one to suppose that all these means of encouragement are very inefficacious." [Royer]

The schools are badly organized or conducted. The great land-owners are indifferent on the subject of agricultural improvement, while the miserably defective condition of the roads and other means of internal communication indicate, that even the government which has organized all the formal apparatus we have mentioned, is not itself alive to the most fundamental element of agricultural progress.

Prussia cannot boast either of its practical agriculture, or of its system of agricultural instruction. It is a proof of how very little has in past ages been done in the way of teaching the rural population the principles of the art of culture, that Prussia should so long have derived an undeserved celebrity from the existence of a private agricultural school at Mogelin, established in 1806, and conducted till his death in 1819, by the distinguished Von Thaer. After his death the school he had founded was made a Royal Academy, and is still in existence. It contains at present only twenty pupils; and even in Von Thaer's time it never contained more than thirty-four. In the much praised primary schools of Prussia, a little instruction in gardening is the only teaching which bears an immediate relation to the future occupations of the rural population.

In the nature of its soils, indeed, which are sandy, light enough to be blown by the winds, and apparently almost sterile, Prussia has much to contend with. This is especially the case in its more ancient and central Dutchies. Westphalia and the Rhenish provinces are naturally richer, and are also more advanced and better cultivated.

Besides, until the revolution of the past year, the burdens or servitudes upon land, of a feudal kind—and of which in the New World you have no examples, except a few of a milder form in the seignories of Lower Canada—were so onerous and so unequally distributed, as greatly to retard the development of its agricultural capabilities. The state of the roads and other means of communication also, as in Bavaria, and the scarcity of large towns, have concurred with other causes, in retaining the agriculture of Prussia in a very backward condition.

* For information on the state of agriculture in Russia, see also a paper by the Hon. Mr. Slocum, in the transactions of the N. Y. State Agricultural Society, for 1848, p. 638.

HOLLAND.—If from the uplands of Germany we descend to the lowlands, and especially to that country which includes the islands at the mouths of the Rhine and the Scheldt, and the low country stretching northward to the Zuyder Zee and the Dollart, we shall find reason to stay our steps and to consider calmly the cause, and purpose, and extent of the wonderful system of canals and embankments which the kingdom of Holland presents.

In a sketch of European agriculture, indeed, Holland is deserving of distinguished mention. Above all other European people the Dutch, though slow, have been patient and persevering in their agricultural labors. Occupying a few more elevated and fertile alluvial spots, in the midst of downs and bogs, and marshes and lakes, and the endless ramifications of many rivers, they have century after century struggled against nature. Draining marshes, pumping out lakes, damming back seas and rivers, reclaiming bogs, fixing by art the wandering downs, interlacing their country with an interminable net-work of gigantic canals;—by such labors as these, they have extended the productive surface of their country, secured its possession, and made its natural riches available. And what makes their praise the greater and more deserved, is the constant watchfulness and care which the retention of their country demands. Exposed on the average of the last thirteen centuries to one great sea or river flood, every seven years, the possession of the land they have gained, is never secure. Lying below the actual level of the sea, large tracts of it are only preserved by the huge dykes that surround them, and to maintain these dykes requires unceasing vigilance, and a large yearly expenditure of money.

And though in past times the Hollanders have done great engineering works, yet the spirit of the sires has not degenerated in their living sons. The draining of the Haarlem lake, now in progress, is the boldest mechanical effort ever yet made in the cause of agriculture in any country, and promises to add no less to the material wealth, than to the engineering and constructive fame of the United Provinces.

I feel a pleasure in thus adverting to the impression made upon my own mind, during my various tours in Holland, in the presence of a meeting of agriculturists, many of whom may inherit from the early settlers of New York, a portion of that industrious and patient blood, which makes every end sure to the determined and persevering man.*

I may mention as an indication of the early desire of the Dutch authorities to promote the diffusion of Agricultural knowledge, that a very old regulation prescribes attendance on agricultural lectures as a necessary branch of study to the established clergy of Holland.† And though in that, as in many other countries, men of the old school at present act as a drag on the progress of scientific agriculture, yet enlightened and zealous minds are at work in various parts of the Netherlands, and advance is gradually being made. The name of MULDER ought especially to be mentioned as most eminent among the scientific men of Holland, not only in advancing pure science, but in advocating and promoting its general applications to the agriculture of his native country.

ITALY.—From Holland turn for a moment to Italy, in which country drainage works somewhat akin to those of the Dutch, form the proudest monuments of which even that famed land can boast, of the victory which perseverance intelligence can achieve over the difficulties and seeming hostilities of nature.

Did time permit, I might present to you a most interesting historical sketch of the changes in agricultural condition and capability which that country has undergone from the period of the ancient Etrurians to the present day. And to the man of science, such a sketch would be the more interesting, from the circumstance that in all the changes which have taken place, the physical and geological structure of the country, has exercised a far more prominent and permanent influence, than either the remarkable industry and constructive skill of the Etruscan inhabitants, or the hostile incursions of its foreign invaders.

To the rich alluvial plains of Lombardy, of which rice and Indian corn, and wheat and abundant milk, are the natural productions; and to Tuscany, in which something of the ancient industry and persevering practical skill of the old Etrurians* still survives, the agricultural enquirer must proceed to see the bright side of Italian cultivation.

But it is in Tuscany chiefly that he will find the most interesting evidence of the conquering power of the living mind over the obstacles of physical nature. The Maremme of Tuscany and the marshes of the Val di Chiana, like the Campagna and the Pontine marshes of the Roman dominions, have long breathed forth that pestilential malaria which, like the summer exhalations of the sea islands and river mouths of your Southern states, carries on its wings fever and lingering ague and frequent death. It is one of the great modern triumphs of engineering skill, applied to the promotion of rural industry—second only to the gigantic labors of the Dutch, of which I have spoken, and to the artificial drainage of our English fens—that the terrors of the Maremme have in a measure been bridled in—that the Val di Chiana, in so far as it lies within the borders of Tuscany, has been drained and dried---and that cheerful health and rich crops prevail over large tracts of country, in which it used to be almost certain death to linger.

Among a Republican people, I, who owe allegiance to a constitutional Monarchy, may be permitted to name to you Leopold the First, of Tuscany, as the principal author of all this good. Whatever our opinions on other matters may be, we shall all, I am sure, agree in this, that those men are great and worthy to be honored, who having been gifted by God with large means and great opportunities, make use of those means and opportunities for the glory of God and the good of their fellow creatures—who, instead of war and scarcity, and suffering and death, promote peace and plenty; and health, and the multiplication and prolongation of human life inculcates the truth that man's proudest triumphs are not those he achieves over his fellows, but those which he gains over himself, or by which he compels the unwilling powers of nature to minister to the material comforts of mankind---who encourages what will unite instead of distract, what will cement instead of divide the nations of the world---as that broad belt of water which laves alike the shores of your country and mine, instead of separating, as in former years, now binds us together more closely than if the same continent contained us.

As the promoter of such ends for twenty-five long years in his country of Tuscany, the name of Leopold the First will not sound unpleasantly even in your republican ears.†

* For a fuller account of the *Rural Industry and Drainage of Holland*, which I wrote for the Edinburgh Review, see vol. 86, p. 419, of that work.

† This must be considered an admirable provision, enabling the pastor to advise in regard to the temporal pursuits, no less than the spiritual affairs of his flock.

* To those who are desirous of obtaining the means of forming clear notions of the physical structure of Italy, of its climatic conditions in the times of the ancient Etrurians, and of the industrial skill as well as the social relations of this people, I venture to recommend a perusal of Denis's *Cities and Cemeteries of Etruria*.

†For an account of the reign of Leopold, see Napier's Florentine History, Vol. VI, and for a detail, with drawings, plans and maps, of the engineering operations by which the Maremme were dried, see *Memorie sul Bonificamente delle Maremme Tuscane*, by Fernando Tarlini, Florence, 1838.

Flanders and Belgium.—In Flanders, both Belgian and French, you are probably prepared for an admission on my part, of great agricultural skill and success. I am compelled, however, to confess my own impression to be, that a great portion of what has been written upon Flemish husbandry, partakes of the character of a romance.† The cultivators of Belgian Flanders have the merit of raising fair crops from certain tracts of poor and sandy soil, of husbanding and applying manures so as to keep such land in culture, and of skilfully varying their crops so as to prevent a premature exhaustion. But no knowledge of the general principles of agriculture is widely diffused among them. The improvement of wet and heavy clay soils, except by open ditches, is almost unknown. Improving implements and thorough drainage, and modern modes of manuring, and some small instruction at least in the elements of science as applied to agriculture, have still to be introduced among them, before they can rank in general knowledge or in skilful practice with the farmers of Scotland or England.

And, indeed, in Belgium as in France, the progressive subdivision of property opposes a growing obstacle to that general amelioration of agricultural practice, which the wants of a numerous people and the progress of knowledge demand. Where the average extent of properties and farms over a whole province is already reduced to about an English acre, we cannot look for the introduction of any of those improvements which demand the purchase of new or comparatively costly implements, the rearing and feeding of multitudes of stock, the employment of hired labor, or generally the application of capital to the land. As in Ireland, the subdivision or morcelling of the tillage farms, has already, in whole districts, been carried to the starvation limit. As into Ireland, the potato failure brought with it into Belgian Flanders, famine and disease, and large emigration,—and notwithstanding all that wise governments can do, it is to be feared that on the recurrence of similar visitations, similar social evils will in both countries again re-appear.

France.—In France I need hardly inform you that practical agriculture is far in arrear. In Normandy the mixture of Teutonic blood has probably some connection with the superiority of the husbandry of this province as compared with most of the other parts of the kingdom. It is certain at least, that notwithstanding the many efforts made by persons in power to promote the introduction and adoption of better methods, the general farming of La Belle France advances with comparative slowness.

This country indeed presents another striking instance of the small connection which may exist between the existence of extensive means of agricultural instruction, provided by the central government, and the practical skill of the rural population.

In 1843 there existed in France one hundred and fifty-seven agricultural societies—six hundred and sixty-four agricultural committees—twenty-two model farms, some of which had schools attached to them—and fifteen schools and chairs of agriculture and agricultural penitentiaries. In the early part of 1849, under the auspices of the republican government, and as part of the plan of M. Fouret, then Minister of Agriculture, twenty-one farming schools had already been opened---a national agricultural university was about to be established on the farms in the little park of Versailles, and a hundred and twenty-two agricultural societies, and three hundred minor institutions, had participated in the funds voted for the encouragement of Agriculture.

† *L'Agriculture Pratique de la Flandre*, par M. J. L. Van Aelbroeck, Paris, 1830, and *Memoire sur L'Agriculture de la Flandre Francaise et sur l' Economie Rurale*, pas J. Cordier, Paris, 1823.

Though it is unquestionable that a country may attain a high rank in agriculture without the aid of formal agricultural schools---provided, as in Scotland, other early mental training is placed within the reach of the rural population---and that in spite of numerous schools, if other obstacles intervene, the cultivators of a country may lag far behind:---yet both common sense and experience show that of two nations of the same blood, placed otherwise in the same circumstances, the one which teaches the principles of agriculture in its schools, will exhibit the most productive harvests on its fields; and that, as in England and Scotland now, a time will come in the agricultural history of every country, when old means and methods will fail to maintain the rural community in a flourishing condition, and when every new means of fertility which advancing knowledge can supply, must be made generally known, and become generally employed. Such are the simplest and most common sense arguments in favor of agricultural teaching---the inutility of which might be argued with some show of reason, from the comparatively small progress yet visible among the fields and farmers of France and Bavaria.

The agricultural statistics of France, which the government has collected and published in great detail, would supply many interesting subjects of reflection, were I at liberty to dwell longer on this part of Europe. I may only mention---as pregnant with thought and instruction in regard to the condition, the food, and the general mode of living of the rural classes of France---the fact, that the number of conscripts who are rejected on account of deficient health, strength and stature, is constantly on the increase; that forty per cent are turned back from this cause; and that though since 1789 the standard has been three times reduced, as large a proportion of the conscripts is below the required height, (now five feet, two inches,) as ever.---(Rubichon.) Such facts as this show how closely the discussion of agricultural is connected with that of the most profound social evils.

Switzerland.---To Switzerland, I only allude as one of those countries in which the influence of natural intelligence and a fair share of early instruction, had been brought to bear most successfully on the improvement of the soil, and especially of the breeds of stock which are best adapted to its peculiar dairy husbandry. Those advances which require the application of capital and science, such as thorough draining and special manuring, are there, however, still unmade; and it will probably be many years, before, in these respects, the cultivators of the Swiss vallies and mountain slopes, can closely imitate the present improved practices of the British Islands.

Spain.---The agricultural condition of Spain, suggests melancholy reflections. The central table lands of this country* are reckoned among the finest wheat growing districts in the world. The culture is rude and imperfect. The soil is scratched with a primitive plough, and is seldom manured, yet the returns are said to be prodigious, and the quality of the grain excellent. But where nature does much, man too often contents himself with doing little. Amid all this plenty, the peasant is miserable. He lives in a cabin of baked mud, or in burrows scooped out from the friable hillocks, ignorant of the luxuries of furniture, and barely possessing the necessaries of life. The want of roads and of means of easy transport, makes his produce almost worthless, so

* The two elevated plains of New and Old Castile, and that of La Mancha, separated from each other by the granites and metamorphic rocks of the Sierra Nevada, are composed of a white limestone, occasionally covered with the drift of other rocks. These plains are burned up in summer, so as to produce no grass till the October rains fall, but they yield magnificent crops of wheat. (Sir E. Head.)

that a comparatively spare population exists, and much wretchedness in the centre of fertile fields and a land abundant in corn.

We sometimes think ourselves unfortunate to have been born, or to be doomed to live where clouded suns impart a lessened light and heat; or where the frosts of winter bind up for many months the hardened earth. Yet in such climes, man more really lives, and exercises a truer dominion over inanimate things, than where tropical skies appear to prepare him for an unceasing enjoyment. Where mind and mental energy are dormant, he only vegetates or exercises his brute passions. Where by perpetual struggles he subdues the adverse elements, bends circumstances to his will, forces a copious abundance from an unwilling soil and in spite of inclement seasons---there he most truly lives, and amidst his hardships enjoys life most; there refreshing sleep visits him with her balmiest breath, and in the power of mind over matter, which his success displays, he brings out more clearly the claim of man to a likeness with HIM who is all mind, and to whose slightest intimation all matter bends.

(*To be continued.*)

LABOR WELL APPLIED IS PRODUCTIVE OF PROFIT.

An intelligent writer in the *Genesee Farmer*, under the above head, makes the following judicious remarks:

Farmers should ever bear in mind that "well directed labor" will insure its reward. Of all classes of men, there is none upon whom this truth needs to be enforced more than the farmer. How many of our farmers are year after year toiling on, overwhelmed with their business on an immense estate, and at the close of the year the accounts are about balanced, and again the same toil and vexation must be renewed! If rightly-directed efforts had been put forth, no more land farmed than could be done to perfection, what a saving of labor, what an increase of profit, what a reward in every point of view, would be received! In travelling through the best farming districts of this country, we often find illustrations of this truth most striking.

I have in my eye a farm of medium size, which, a few years since, was anything but neat and in order, and which gave sad indications that labor had not been "well applied." But a change has come over this scene. A new occupant takes possession, fixed in his principles—determined that he would carry out this great maxim, on which depends the prosperity and success of the farmer, that "What is worth doing, is worth doing well." Now, how soon the farm begins to assume a new appearance! the fences are repaired, the land is drained where needed, the buildings are neatly repaired and arranged; manures are obtained best suited to the soil, and crops which are adapted to this region; a new and improved stock of cattle, sheep, and swine are secured, and in short every thing characteristic of the good farmer appears year after year, under the direction of him who knows how to *apply labor*. Instead of having, at the end of the year, to resort to loans to make up the deficiencies, this same farm yields a return that gladdens the heart of the farmer. As years roll on, each succeeding one finds a larger balance in favor of well-directed labor; and now, in addition to the ordinary appendages of a farm, there is reared, out of the profits of this well-regulated concern, a neat and tasty cottage, in the midst of shrubbery the most tasty and luxuriant—all the work of him who started with the determination to do all things well. And this is not all; as the well-regulated expense book is balanced, a profit which would gladden even the hearts of some of our bankers on the capital invested, is found on hand, to be applied as may best conduce to the comfort and welfare of an interesting family. There is no complaint of means to educate the children. They are brought up practically to appreciate the maxim that "What is worth doing, is worth doing well," and their education prepares them to carry out in all the varied scenes of life this all-important but too little practised truth.

Let me then urge upon the farmers who read this paper—and I am glad to know they are many, and among the most intelligent in our land—to put in practice, if they have not already done so, this simple but effectual method of farm labor, which brings with it the most abundant reward, and without which they will in vain struggle on, never securing the end of their toil. Order is Heaven's first law, and let it be yours in every thing relating to your farm. Remember you belong to a noble profession, and one that is destined to exert a mighty influence on the destinies of a world. As one man, then, let the American farmers adopt as their motto, "*All things relating to my farm shall be well done,*"—and no more shall be undertaken than can be thus done,—and soon they will be found to occupy that exalted position that will cause their influence to be felt the world over. Surely it cannot be necessary to urge upon the enlightened, the intelligent, the hard-working American farmer, further considerations in support of a principle that must, on a moment's reflection, commend itself to every right-minded reflecting man.

AGRICULTURAL ASSOCIATION OF UPPER CANADA.

NOTICE IS HEREBY GIVEN, that a meeting of the Agricultural Association of Upper Canada will be held on Wednesday the 20th day of February next at ten o'clock in the forenoon, at the Court House in the city of Toronto, for the purpose of considering certain amendments to the constitution of said society, to be then and there submitted; and also for the transaction of other important business connected with the Association. A full attendance therefore is urgently requested.

The directors will have to appoint two persons to act as judges, in connection with another, to be selected by the Governor General, for the purpose of deciding the prize of 50*l.*, offered by his Excellency for the best essay on the connection between the canals and agriculture of Canada.

By order,

GEO. BUCKLAND, Secretary.

Toronto, January 2, 1850.

OSBORNE'S STEAM PLOUGH.—In the London *Mechanic's Magazine* we find it stated that Mr. Curwood, of Whitechapel, has constructed, under the patent of Mr. Osborne, King-street, St. James's, a steam locomotive engine, expressly for agricultural work, or steam haulage on canals, in conjunction with Mr. Andrew Smith's wire rope. In the first trial, made on a farm in Essex, a pair of their steam engines were placed opposite each other, about 120 yards apart, with a sufficient length of wire rope between them, the surplus being coiled round the beam of one of Lowcock's two-way ploughs. This trial, although not successful, proved that the conditions of the two modes of draught differ essentially; horse draught being upwards, and exercising a direct control by its proximity to the plough; whereas the draught by steam power is distant and downwards, and

exercises no direct control on the plough: hence the experiment was instructive. Another trial was made, extending the distance to 210 yards between the engines, when, with both a Kent turn and an Essex rest plough, very good work was accomplished. The subsequent trials were made with a two-wheel single engine, the wire rope being returned through a pully anchored opposite the engine, and were equally successful as regards the work done. When a common swing plough was tried, the downward draught buried it beyond the necessary depth at once. From these rude trials, with an engine of ten-horse power, which is locomotive, or can be drawn by two horses, we think there is little doubt of the practicability of the plan, as now tested; but on the question of its economy, nothing but actual experiments on a large scale, with suitable implements, can determine.

These engines possess great advantages, in being applicable to threshing and other agricultural purposes, and can be moved from farm to farm or from one field to another with the greatest facility. The mode employed for taking up the wire rope constitutes the patent. The compactness of the engine is admirable; for, while it is equal to ten-horse power, and performs three distinct operations, its compass is only 10 feet by 6½ feet, the height of boiler being 5 feet. There is now every prospect of an extensive and profitable application of steam power being made to many of the purposes of agriculture.

BENEFITS OF AGRICULTURAL EXHIBITIONS.

Horace Greeley of the New York *Tribune*, in writing from the State Fair at Syracuse, thus speaks of the utility of such exhibitions:—

"There cannot be less than two or three hundred different kinds of agricultural implements on exhibition here—horse-rakes, cultivators, straw-cutters, subsoil and all other plows, new bee-hives, water-wheels, horse power saws, &c. &c. I consider this altogether the most important feature of the Fair. A great ox may be reared by a greater fool; but no man who ever worked a year at farming can spend a day among these implements and inventions without being stimulated to *think*. The great end of all such exhibitions is an improvement of the breed of farmers—of men. Now the man who has been skimming over a hundred acres of land for the last twenty or thirty years, plowing six inches deep, manuring with his good wishes, and growing fifteen or twenty bushels of corn to the acre, cannot spend a day in one of these Fair enclosures, without being startled and shamed. These subsoil plows, one of which, properly used, would double his usual product of corn and vegetables, and in dry seasons treble it—these straw-cutters, with one of which his scanty crop of hay might have been made, with the aid of straw, stalks, &c., to winter his stock bountifully—these cultivators, seed-planters, horse-rakes, and other labor-saving implements, must set him thinking. What sort of crops do those farmers obtain who use such implements? Who make the most by farming—the fifteen or the fifty bushel corn-growers? What sort of farmers is it who are able to buy land, when any is for sale low for cash? What sort of farming leaves land in condition to sell advantageously? These questions arise spontaneously in the simplest minds, and they will be answered. I don't believe a farmer can attend three successive Fairs, and not resolve to farm better through all his life afterward.

"No other business could bear to be managed so wretchedly as farming still is. Only think of civilized men killing their bees to get the honey, in this nineteenth century after Christ. Killing a cow to obtain her milk would be on the same principle. Yet to this day half the bee-men smother their bees to get the honey, although the land is full of simple and cheap hives, on a more humane and economical principle. How long shall the stupid barbarism of smothering bees continue?"

MODE OF FATTENING CATTLE IN GREAT BRITAIN.

John Bull loves fat beef, and some of the beef in that country is made enormously fat. The following is the mode of feeding adopted by the Messrs. Davey, and some others, in Scotland. The cattle are kept in what are called boxes or pens, and the following feed given them daily, to each:—

2 lbs. linseed, (flaxseed),	cost 2½ pence.
6 lbs. barley meal, or rye,	4½ "
84 lbs. turnips, . .	4½ "
14 lbs. hay, . . .	4½ "
Attendance and fuel,	1½ "
	17½ "

or about 30 per cents. of Yankee money per day.

The chopped straw or hay was first mixed with the meal, in a shallow wooden cistern, and was incorporated with the linseed or flaxseed, in a boiling state. The cattle were fed six times per day, and on this system they were enabled to fatten an ox weighing 10 cwt. of the very best quality of meat, in sixteen weeks. It is stated that the farmer is enabled thus to feed three animals, instead of one on the old system, and thereby make a quicker return of capital, which is the life of trade. It will be seen, according to this, that if it takes sixteen weeks to fatten an ox, at 30 cents cost per day, the cost of fattening would amount to nearly 37 dollars. Their markets must be very excellent, to allow them a profit.

We guess the thing could be done here much quicker, and more profitably, on Indian meal and potatoes.—*Maine Farmer.*

ON PLOUGHING.

In wet soils it is necessary to have the fields ploughed in small ridges, so that the open furrows may carry off the superabundant water. Those who are possessors of such land I shall pass by in the meanwhile: it is only those who occupy thoroughly drained lands, or who have had the good fortune to have naturally dry, that I wish at present to address myself. Although I do not mean to say that I will disclose a mystery, yet I shall endeavour to point out a prevailing error which every day meets my eye, for even on land thoroughly drained, or naturally dry, the old eighteen-feet ridges are still persisted in. Being for sometime back annoyed at the insignificant appearance of the crop in the 'hinting fur,' (as we locally term them), I was desirous of having the matter decided, as to what difference there was from the even field. On a field of oats after lea, I had an average furrow cut, three feet in breadth, and the same breadth on the even field alongside. Both these were carefully threshed, and the result was, that the even field produced exactly three times the quantity of grain grown on the same breadth of land, I may say partly laid waste by the open furrow; the average produce of the field was seven quarters per acre; and had that field been ploughed as it ought to have been, without an open furrow, the produce would have been increased three bushels per acre,—hence the advantage of the turn-wrest plough.

In some counties in England where farming is carried to a very high pitch (although we Scottish farmers would fain claim superiority), the land intended for grain crops is mostly ploughed by the turn-wrest plough, more especially in Kent; hence we are often referred by writers to the Kentish turn-wrest plough. But to come nearer home, in the south of Scotland I have had the opportunity of seeing several fields ploughed, and in the course of ploughing, with an implement as above alluded to, invented and put in operation by that eminent Agriculturist Mr. Smith, late of Deanston. The constitution of the plough differed little from the one in common use: the share was formed so as to cut the furrow slice right or left; the mould boards were attached to each other, and, by a small rod scientifically attached thereto, the ploughman turned them with facility. Hence the ploughing of a field was performed without a *feering* or *hinting furrow*.

The above is the most practical method that can be adopted in ploughing land where open furrows are necessary, more especially where the fields are bounded by unequal sides; but where the fields are square or equal-sided, the desired end may be accomplished with the common plough by commencing at the boundary, and driving right round the field in the direction against the sun's course, thereby the ploughing will be accomplished, not only without an open furrow, but more expeditiously than ploughing in ridges, as the turning—a great disadvantage—is almost dispensed with. This system I have adopted with advantage; the only objection the ploughmen made being, that they could not show their dexterity in driving a 'hinting,' which, if neatly performed, is much boasted of; but *profit* is of more consequence than *pleasure*.—*A. F. J.—Scottish Farmer.*

ECONOMICAL MODE OF FEEDING STOCK.

Farmers who have but few animals, say two or three cows, a yoke of cattle, or a pair of horses, will find it greatly for their interest to cut their corn-stalks, straw, and even hay, when it bears a high price. When this is done, put the cut fodder into casks of suitable dimensions, take hot water, to prolong the heat, and salt it at the rate of two quarts to a barrel. All know that brine can be kept hot longer than fresh water. Pour this upon the cut fodder, as fast as possible, in order to prevent the escape of heat, cover the head of the cask close with a blanket, or anything convenient which will keep in the steam, and let it stand half a day, or longer, when it will be found tolerably well cooked. Now place it in troughs for the stock; and if you have a little meal or bran to sprinkle over it, your animals will relish the food so much the better, and it will do them more good. Corn-stalks, straw, and coarse hay, are worth twice as much for food, when thus prepared, than if thrown out neither cut nor steamed. We give the above from experience, having been in the habit of following the practice for years.

Farmers labour diligently during spring, summer, and autumn, to raise and harvest fodder, then allow a large portion to be wasted from sheer negligence. Winter is their leisure time, and they should endeavour, at some extra pains, to economise the food they have worked so hard to procure. Machines for cutting stalks, straw, and hay, have been much improved and multiplied within a few years past, and can now be had at low prices. It is economical to possess them, and no farmer should be without at least one on his premises.—*American Agriculturist.*

THE ART OF WHEAT RAISING.

Although the culture of wheat has been more or less practised ever since men have cultivated the earth, it is doubtful if the true art of raising it is fully understood. It is not a difficult thing to raise wheat, when all the elements are favourable to its growth. By this we mean when the composition of the soil, and the weather and other incidents of the climate are right, and insects and certain external enemies do not interpose. But to raise it when all these requisites are not supplied by nature, is not so easy. The great art, therefore, consists in knowing, in the first place, what is needed, and, in the second place, how to supply it. Many of the countries of Southern Europe, as Sicily, for instance, which in olden times were very prolific in this grain, now afford but scanty crops of it. The reason of it is probably this: the material in the soil necessary to make a good crop of wheat has become exhausted, is taken out and carried off years ago in the abundant harvests of that time, and the peasants do not know how to supply it again. From what accounts we can gather, the art is understood at the present time as well perhaps in England, as anywhere else in the world. There are many reasons why this should be the case. The crowded state of the population there causes a great demand for bread stuffs, and these stuffs accordingly bring a comparatively great price. Hence the farmers pay greater attention to the subject, and are remunerated for their extra care and attention by the advanced state of the markets. In this country, especially in the western wheat-growing States, as they are called, no such incentives act upon the wheat raisers. They have a virgin soil to cultivate. All that is required is to plow, harrow and cast the seed into the earth, and wait patiently for the time of harvest. This course will, in time, exhaust their soil, however fertile it may be now. After generations will be under the necessity of studying the art of wheat raising, or be content with diminished crops. The experience of some of the older states is reading this lesson to them.

It has been doubted if the culture of wheat is any better understood in England than in our own country, or that they do raise any larger crops than are raised in Western New York. That they do can be abundantly proved; and even if they raised no better crops, but those equally as good, it must be evidence that they understand the art pretty well, for it must be remembered that their soil has been a long time in cultivation, and if it had not been well replenished with what that crop requires, it would have been exhausted long since.

In the transactions of the New York State Agricultural Society for 1848, we find a letter from J. Slocum, addressed to the secretary of that Society, on this very subject. Previous to Mr. Slocum's visiting England, he did not believe that the English did raise better wheat crops than were raised in New York; but actual inspection convinced him of the contrary. In the letter referred to he says:—"On the 26th of August, I visited the farm of Mr. Peter Lane, at Nazeby, Northamptonshire, 75 miles from London, and was much gratified to find him in the midst of his wheat harvest, and most seriously do I wish I could present to the view of the farmers of this country, his luxuriant fields of wheat, as they appeared to me. Having been bred a farmer, and having had for many years opportunities to observe the wheat crops of Western New York and the Western States, I thought I had seen as good wheat as could be produced; but I had never seen anything that could compare with this whole crop, which consisted of about fifty acres of winter wheat and twenty-two of spring wheat. On enquiring of Mr. Lane how much the seventy-two acres would probably yield, he answered four hundred quarters, or *thirty-two hundred bushels*, and in this estimate he was not disappointed, as I was again at Nazeby in November, when he had thrashed and sold a large portion of his crop. Although this seemed to me an extraordinary yield, it was not so regarded by Mr. Lane, and I was satisfied, from subsequent enquiry and obser-

vation, that it was *not* much above the average yield of the wheat producing counties of England. The soil of this farm, Mr. S. says, is "what is termed in England 'strong land,' being a stiff red clay, intermixed with flint and iron stone, alternating occasionally in the same field with loam and gravel."

Our farmers would think they were doing pretty well to average over forty-four bushels to the acre, in a field of seventy-two acres of wheat, and it is fair to infer that this excellent crop must be attributable as much to understanding the art of cultivating as to the strength of the soil.—*Maine Farmer.*

TO WHAT EXTENT DO THE ROOTS OF PLANTS ENTER THE SOIL?

Perhaps no fact is so little understood as the depths to which the roots of plants will travel in a well disintegrated soil; the length of roots, also, in their horizontal travel, is much greater than is generally supposed. We have tried a number of experiments to ascertain these facts, and the results are as follows:—The roots of Indian corn, although invisible to the naked eye, have an average length of five and a half feet, while those of the onion are generally eighteen inches in length. If a trench be dug through a garden which has been thoroughly sub-soiled, and the side of this trench be washed carefully with water, the roots will be found to pass down to a depth of thirty-four inches as a maximum; such plants (like the onion) as have a less length of root going to lesser depths. During a severe drought, however, even the shorter rooted plants will throw down minute fibres, which bring up moisture for the sustenance of the plant.

Thus we find that meadows, if well sub-soiled to full depth, before being put down to grass, never run out; but those which have been plowed to slight depths, soon begin to fail. We have examined many such meadows, and have always found that when the termini of the roots of grasses meet with a cold and compact sub-soil, they decay and prevent a healthy condition of the plant above; those meadows which have been previously fully sub-soiled may be mown for years without any material deterioration in quality; and, indeed, if the soil contains a full supply of constituents or receives them from judicious top-dressings, the meadow may be mown for any length of time without renewal.—*Working Farmer.*

N. Y. State Agricultural Society.—The following are the officers appointed for the ensuing year, at the annual meeting, held on the 17th inst., at Albany:

President.— E. B. Prentice, Albany.

Vice-Presidents.—Ambrose Stevens, N. Y.; Lewis G. Morris, Westchester; Anthony Van Bergen, Greene; Z. C. Platt, Clinton; J. B. Burnett, Onondago; E. C. Frost, Chemung; Oliver Phelps, Ontario; Nelson Van Ness, Chautauque,

Cor. Secretary.—B. P. Johnston.

Rec. Secretary.—J. McD. McIntyre.

Treasurer.—Luther Tucker.

Executive Committee.—B. B. Kirtland, J. J. Viele, H. Wendell, A. Thompson, Henry Wager.

The next Fair is to be held at Albany. The Society unanimously adopted a resolution, requesting Congress to establish a National Agricultural Bureau.

To Cure Bloating or Hoven in Cattle.—A tablespoonful of spirits of hartshorn, for an ox or cow, or a teaspoonfool for a sheep, will afford instantaneous relief. It should be diluted with water or milk. It acts by decomposing the gas generated in the stomach, which is the cause of the disease.

THE FARMER.—A BEAUTIFUL PICTURE.

The man who stands upon his own soil, who feels that by the laws of the land in which he lives—by the law of civilized nations—he is the rightful and exclusive owner of the land which he tills, is by the constitution of our nature, under a wholesome influence, not easily imbibed from any other source. He feels—other things being equal—more strongly than another the character of a man as the lord of the inanimate world. Of this great and wonderful sphere, which fashioned by the hand of God, and upheld by his power, is rolling through the heavens, all is his: his from the centre to the sky. It is the space on which the generation before him moved in its round of duties; and he feels himself connected by a visible link, with those who preceded him, as he is, also to those who will follow him, and to whom he is to transmit a home. Perhaps his farm has come down to him from his fathers. They have gone to their last home; he can trace their footsteps over the scenes of his daily labours. The roof which shelters him was reared by those to whom he owes his being. Some interesting domestic tradition is connected with every enclosure. The favourite fruit-tree was planted by his father's hand. He sported in his boyhood beside the brook, which still winds through the meadow. Through that field lies the path to the village school of earliest days. He still hears from his window the voice of the Sabbath bell which called his fathers and his forefathers to the house of God, and near at hand is the spot where his parents laid down to rest, and where, when his time is come, he shall be laid by his children. These are the feelings of the owner of the soil. Words cannot paint them—gold cannot buy them; they flow out of the deepest fountains of the heart; they are the lifespring of a fresh, healthy and generous national character.—*Hon. Edward Everett.*

Simple Remedy.—The following simple application for a horse's feet which are brittle, or hoof-bound, I learned from an English shoer, and having tried it with good effect and never having seen it fail, I send it to you to be used as you may deem proper.

Mix equal parts of tar and some soft grease, and having the foot clean and dry, apply it hot, but not boiling, to all parts, letting it run under the shoe as much as possible.

In bad cases the application should be made every day, for a while, and then two or three times a week, till the foot becomes strong and smooth.—*Correspondent Genesee Farmer.*

Galls from Harness or Saddle.—"A Volunteer" tells the *New England Farmer* that the following remedy was found to be invaluable in the fatiguing marches in Mexico:—"White lead, finely pulverized, is the most effective application. Rubbed on dry, or made into a paste with milk, and applied a few times; it will also prevent white hairs growing on galled places.

Receipt for a Rider.—Keep your head up, chin down, chest forward, shoulders back, elbows in, hands down, back in, belly out, fork forward, thighs fixed, knees in, legs close, heels down, and toes in. Trot two hours a day without stirrups, loins loose, seat firm, hand tight, horse and rider well balanced, and then time and perseverance may make you a horseman.

Tan converted into Manure.—This, it is said, may be successfully accomplished, by placing alternate layers of spent tan and lime—the former two feet thick, the latter 3 inches—remaining thus for two years.

Horticulture.

IMPORTANCE OF ORCHARD PLANTING.

J. Dougall, Rosebank Nursery, Amherstburgh.

Climate and Soil of Canada peculiarly adapted to Fruit Culture.

Steep banks or sides of hills, or stony ground, unfit for cultivating other crops, may be profitably planted with fruit trees; but in this case, a space of at least eight or ten feet in diameter must be cleared from stones and thoroughly trenched; and if the land is poor, the subsoil should be thrown away and good earth put in place of it, before planting the trees; and this space, and even more as the tree increases in size, should be dug or hoed over twice a year, to destroy the grass and weeds, which otherwise soon choke up the trees; they should also be manured from time to time. After the trees have attained a good size, these spaces might, in some cases, be laid down with grass, and sheep or calves could be pastured without injury to the trees.

Care, however, must be had on the sides of hills, where the subsoil is a retentive clay, and where it has been thrown out and replaced by other soil, that a small drain be made from the lowest side of the hole thus formed till it comes out on the face of the hill side a little below the level of the bottom of the holes, to carry off the water; otherwise the trees would be much injured, if not killed, by the water retained in these holes, which would be oftener full than on level land, as the water running down the hill would be caught in the holes like so many cups, and the roots would be destroyed by freezing in winter, and almost boiled with the heat of summer. I have known some fine trees, bought from me, killed by being planted in this manner on the slope of a bank, without forming small drains to carry off the water, and the purchaser could not understand how they should die, when he took such pains to make large deep holes, and fill them with fine rich earth. When the reason was explained to him, he saw at once his error. A very small trench, as deep as the bottom of the hole, and filled up with small rubble stone, will be quite sufficient to carry off the water. It may be said that this is a great deal of labour, but nothing could be raised without labour, and if fine fruit will not pay for it, nothing else will; besides, it is not half as much as sowing and reaping the same space of ground, even on level land would be, while the profit of the fruit will be much more than could be realised from a similar extent of the best fields in any other crop.

In the colder parts of Canada, a warm sandy loam will be the best soil, in general, for orchards and gardens; but in the warmer parts, gravelly loam, or a strong loam, will be found more suitable, as the trees will grow better and be longer lived, whilst the fruit will be larger and finer. For the peach, sandy soils have been considered the best—it comes earlier into bearing on these soils, as it does not grow so strong, and the fruit is larger: and if the soil is a yellow, sandy loam, it will not be so liable to injury from late spring frost. But where the climate is suitable, I have found strong clayey loams much better for a peach orchard than sandy soils. The trees grow larger and healthier and last much longer, and the fruit, though not just so large, is much higher flavoured.

A strong soil is most suited for the plum, as on light sandy soils it is more liable to attacks from curculio, and the tree does not grow so strong and healthy.

The cherry does best on a sandy or gravelly loam, though it will thrive on all good *dry* soils. On wet or undrained soils, with clayey subsoils, it does not thrive.

The apple and pear will succeed on any good dry soil, but they require different culture on different soils. In dry soils, with gravelly or sandy subsoils, little need of draining will be required. The larger and deeper the hole for the reception of the tree, and the richer the earth (if not mixed with fresh manure) the better. But on clayey subsoils, unless the land is thoroughly underdrained, and subsoil or trench ploughed, the holes, though they may be made wide, must not be made deeper than to the subsoil, below which the trees should not be planted; and if the surface soil is shallow, a broad mound of rich earth may be made around the tree. The reasons for this were explained previously, in giving directions for planting on side hills. It may be said, that no person should plant trees on any soil, more especially those of this nature, without underdraining and subsoil ploughing or trenching the land, and I grant that such is the case; but as I know that many persons will not be at this trouble and expense, but would rather do without orchards than underdrain and subsoil the land—to these I would say, that very good success may be attained by planting, as above directed, after good common ploughing. I planted one orchard in this way, on the top of a retentive clayey subsoil, which is flourishing well, but, undoubtedly, it will not last so well as others that have been underdrained and subsoil ploughed.—*Montreal Witness.*

(*To be continued.*)

REPORT ON MR. MARSTON'S NURSERY.

L'Orignal, 20th Aug. 1849.

My Dear Sir,—I have noticed with much pleasure the taste which you have displayed as an horticulturist, in bringing your nursery to that degree of perfection which it at present exhibits. I wish to transmit to the Provincial Agricultural Society any statement you may be pleased to favor me, stating the extent of your nursery, the kind of trees it contains, the number you have grafted, and the number you have budded. You will also be pleased to give me any other information connected with your pursuits as an horticulturist. I shall be happy to receive your answer before the 1st of September, that I may transmit the information to the Provincial Society at its annual meeting.

I am, my dear sir,
Your obedient servant,
C. P. Treadwell, *President O. D. A. S.*

To Mr. Josiah C. Marston.

L'Orignal, Sept. 1849.

Dear Sir,—It is with much pleasure I answer the enquiries you make concerning my nursery. You are aware that I am as yet but a beginner, and not exactly entitled to the name of an horticulturist, but I trust that I shall be yet worthy of assuming that high name. I am anxious to import into the district all the fine varieties of fruit that can be obtained. With this object in view, I intend, as soon as circumstances will admit, to try all the different kinds, in order to ascertain which will suit our climate best. My experience in horticulture, which is but limited, has been chiefly confined to apple trees. I have had no difficulty in grafting and budding as yet; the former I usually perform earlier in spring than is necessary in warmer climates, the object of which is, to give the young shoots an early growth, so

that they may get well matured before the coming winter. With seven years' experience, I have not lost six per cent., in practising the common mode of cleft grafting. In old trees, when I work young stocks, I prefer budding (American Shield budding), having found it the safest and most speedy way of working fruit trees. I have now in my nursery grounds 25,000 apple trees and 500 cherry trees; of the former 2,500 are one year old from the bud, and 2,000 of the present season also from the bud. The following are the kinds.

Early Harvest,	Roxburry Russett,
Summer Queen,	English do.
Early Strawberry,	Grand Isle do.
Large Yellow Baugh,	Feather Coats,
Rhode Island Greening,	Paper Apple,
Fall Greening,	Spitzenburgh,
Winter Greening,	Oyster Bay,
Sweet Greening,	Stephen's Apple,
Yellow Bellflower,	Cat Head,
Newtown Pippin,	Seek no farther,
Twenty-ounce Pippin,	Fameuse,
Holland Pippin,	Siberian Crab,
Fall Pippin,	Northern Spy,
Lady's Pippin,	Prunetto,
Pumgries—Sour	Sweet Pearmain,
Do. —Sweet	Blue do.
Pound Sweeting,	Glass Apple,
Mouser Sweeting,	St. Lawrence,
Ewing's Sweeting,	Gilliflower,
Menkly do.	Suran,
Wing do.	Barnisan.

Together with the other native varieties of fine quality. My cherry trees, many of which are bearing, are of the common English variety.

The number of lbs. of maple sugar I manufactured during the last three years, is as follows:—

In 1847 .....1500 lbs.
In 1848 .....1000 lbs.
In 1849 .....1500 lbs.

Unless some accident happen to my maple orchard, in five years from this date, I shall tap 3000 trees, which is more than three times the number I now tap. Had I time, I would give you a statement of the cost of manufacturing.†

I remain, your obedient servant,

J. C. Marston.

Draining warms the Soil.—It is reported, that in a garden in Hampshire, the temperature of the soil has been raised 15 deg. by draining heavy land four and a half feet deep. This, if true, is a prodigious gain—beyond anything that we could have attempted as a permanent result, even in summer—winter is of course excluded from the statement. Circumstances prevent our examining the statement in the case alluded to; but, allowing for some exaggeration, there can be no doubt that a result sufficiently approaching it to be of the greatest value, is attainable.

It is not now, for the first time, that the public attention has been drawn in the *Gardener's Chronicle*, to this highly important subject. On the contrary, we have on several previous occasions pointed out the undoubted fact, that an increased temperature is one of the most valuable results of deep drainage; a more probable cause of the immediate improvement of the health of crops than the mere removal of water, or introduction of air into the soil. The nature of deep draining is in fact such as to render additional access of air to the roots of plants too inconsiderable to be appreciable. It is only when deep draining and deep trenching accompany each other, that any great access of air to roots beyond what is customary can be anticipated. Where both are secured, the effect is certainly magical.

There exists in Essex, not a hundred miles from Brentwood, an orchard of apples, pears, plums and cherries, which was planted about twenty-two years ago in a heavy clay, trenched down to an iron pan on which it lies. For a few years, the trees grow pretty well, that is to say, as long as their roots were near the surface, and received the warmth of the summer's sun; but as they advanced downwares, the growth became "small by degrees and beautifully less," till at last it ceased, and nothing flourished but an abundance of grey lichens, with which the branches were covered. The owner was advised to drain it three feet below the pan. In the first year afterwards, vitality was roused so effectually, that the lichens began to disappear, cast off by the swelling bark, and the last stage of decripitude had been exchanged, by the end of the first six months, for youthful vigour. In the second and third seasons after the draining, the trees made shoots from four to five feet long.

We have no doubt, that the main cause of this remarkable and sudden change, was the elevation of temperature consequent upon very deep drainage. Rain becomes heated by the surface soil, and carries its temperature with it as far as it sinks into the soil. The gain in this way is variously estimated at from ten deg. to 15 deg. in summer—an enormous gain, which places plants on a hotbed—for soil heated ten degrees above the ordinary temperature is nothing else. Deep draining, therefore, not only offers considerable security against the introduction of roots into the water channels, but has the great and unsuspected advantage of considerably raising the temperature of the earth which is in contact with the drains, deep as they may be, for water cannot soak rapidly into earth without carrying warmth along with it. This is now so well understood by men of intelligence, that it is superfluous to dwell upon it.—*Gardener's Chronicle.*

Novel mode of propagating apple trees.

We have mentioned almost every mode of multiplying or propagating apple trees that could be devised, but have been cautious about recommending those modes which have not been pretty thoroughly tested from the infancy to the old age of the trees.

Planting the seeds and grafting or budding the young trees, is the old established mode of propagating extensively the various kinds that we need or desire. The following mode we derive from the Patent Office Reports, communicated to Hon. E. Burke, former commissioner of Patents, by Timothy Dudley, of Mendon, in Adams county, Illinois. It seems that the plan succeeded well with him, and as he states that the scions took root, and that by breaking off all other roots, he confined the nourishment of the trees to their own roots, it may be a good method.—We have never seen the mode tried, and only give it to our readers as an item of intelligence in the business of raising trees, which they may try at their leisure or not, as they may deem advisable.

In the spring of 1840, says he, in the early part of March, I procured from the best orchard I could find, two or three large bundles of scions, cut from horizontal branches of the last growth. These I buried in my garden, three inches under ground, till I should want them.

† We should be obliged to Mr. Marston for this, or any other information in accordance with his pursuits.—[Editors of Agriculturist.]

When the season was so far advanced that the buds on the trees began to crack open, and the small leaves to appear, I dug a trench along each line of apple trees, (these trees had been set out in a nursery, four feet apart, a year before) about six inches deep and about the same width. I then bent down an apple tree, and with a forked stick drove into the ground, held it there firmly; then with a sharp pointed strong knife and a hammer, I commenced grafting. First, I drove the knife through the tree at the root, and made a cleft large enough to insert the scion. I then with a sharp knife cut my scion about six inches long, sharpened the lower end to a wedge-like form, and drove it into the cleft until the bark on the scion just met the bark on the tree; pulled out my large knife—the split in the tree of course closed, and held my scion fast. In five or six inches, I stuck in another, and continued so on until I came to the top of the tree. I then filled up the trench with fine loose soil, tramping it down with my feet, leaving only the upper bud out of the earth. The top of the tree I covered up in the same way, leaving the ends of the twigs just out of the ground. In this way I treated one hundred apple trees. They were one-and-a-half inch in diameter, and very thrifty. The scions grew astonishingly well. Of about 800 set, all grew but about twenty, and in two years the scions had formed roots of their own, so that when I took them up, I broke off the root of the old stock and threw it away, and each twig of the top grew and formed roots of its own.

These trees, he says, are now bearing trees. As we said before, we have never seen this mode tried, and cannot recommend it from any experience of our own. If any of our readers in Maine have had experience in this mode of propagating trees, we should be happy to hear from them on the subject.—*Maine Farmer.*

When is the Fruit Prepared?—It is not common for unreflecting men to disconnect, by considerable space of time, a cause from its effect. Whatever new occurs is referred to causes then and at the same place operating, instead of looking back, as it is often necessary to do, for a considerable time. The eggs of the Hessian fly are not laid at the time the worm is doing its work of destruction, but a half year before. Colds and low feed in winter produce disease and feebleness in the spring.

Guided by this law of things, which is to a considerable degree uniform, we may ascertain that fruits are not the result of culture bestowed in their immediate connection; but may generally be said to depend on causes which have been in operation for something like a year before. The cultivator who neglects his strawberry beds from the time the fruit is gone, till the following spring, will then renew his efforts pretty much in vain. The material of which strawberries are made, is got ready during the summer and fall of the year previous to that in which it is produced. Good culture applied then, enables the vine to obtain strength, and to lay up in itself a fund of those materials, which, in the following spring, come forth in the shape of delicious fruit. The same is true of the currant, the raspberry, and the gooseberry. In the spring of the year in which they bear, they have no time or opportunity to do much in the way of getting ready for the fruit they are to produce; but they are at it all the previous season. So of peaches, apples, pears, plums, and every other fruit of the sort. The growth of wood is made, ripened, and its tissues stored with materials for the next summer's fruit. If not done then it will never be done.

A knowledge of this law of production is of great use in directing us in the right modes of culture of those products which depend on perennial growth. If peaches or pears are to be cultivated, for the next season, that culture must be applied during the present one. If the tree fails to ripen its wood properly this autumn it will not be ready for production next season. It will have no capital on hand, of which it may be made. The farmer understands this law in connection with his grain crops; which he knows must be cultivated long before hand. He need only apply the same to his fruits.—*Prairie Farmer.*

The Victoria Lily of South America.

The Victoria Regia—for such is the royal name of this royal lily—is, as its gigantic character would naturally indicate, an inhabitant of the New World, having been on different occasions found, by scientific travellers, completely covering large tracts of expansive lakes and the placid waters of some of those great rivers which flow into the Amazon. It grows only in shallow water; but this does not prevant it occupying the surface of these rivers and lakes for miles of extent, to the exclusion of almost every other aquatic plant.

From published accounts of this extraordinary plant at Chatsworth—the seat of he Duke of Devonshire,—we learn that the first flower appeared (in bud) on 1st November last, partially opened on the evening of Thursday, 8th November, between five and eight o'clock, partially closed during sunlight on Friday 9th, and fully opened on the same evening between five and eight o'clock. On the morning of Saturday, the flower was beginning to decay. Professor Lindsay says:—"The flower itself, when it first opens, resembles the white water lily, of a dazzling white, with its fine leathery petals, forming a goblet of the most elegant proportions; but as the day advances it gradualiy expands till it becomes nearly flat; towards evening a faint blush becomes visible in the centre, the petals fall back more and more, and at last, about six o'clock, a sudden change occurs; in a few minutes the petals arrange themselves in the form of snow-white hemisphere, whose edge reposes on the water, and the centre rises majestically at the summit, producing a diadem of rosy points. It then * * constitutes one of the most elegant objects in nature. Shortly after, the expansion of the central parts proceeding, these points fall back; the stamens unfold in an interior coronet, the stigmas are laid bare, a grateful perfume arises into the air, and the great object of the flower, the fertilization of the seeds, is accomplished. Then fold inwards the petals, the flower closes, the fairest of vegetable textures become wrinkled, decay begins, and the flower stalk withdraws itself beneath the water, as if to veil the progress of corruption. But out of this decay arises a new living body; the fruit curved down swells rapidly, and in a short time the fruit, a prickly seed-vessel is observed concealed beneath the floating leaves."

The leaves of the plant are of extraordinary dimensions, and round, having upturned margins, to assist in floating them, and which give them a boat or dish-shaped appearance, hence the name given to the plant by the Guarani Indians, *Yrupe*, literally water-platter. At Chatsworth, some of the leaves have attained to nearly five feet in diameter, and the largest flower, we believe, 10½ inches in diameter. A young lady, somewhere about ten years of age, enjoyed a sail upon one of these gigantic leaves. In its native habitat, we learn that aquatic birds walk with care from leaf to leaf, which is likewise the case with the Nelumbium of the East—the "Lily of the Nile," which is not now, however, found on the "Father of Rivers."

A substitute for Tea.—Dr. Graham, an old and experienced physician in London, says, 'I may state, on very respectable authority. that the first leaves of whortleberry, properly gathered and dried in the shade, cannot be distinguished from real China teas.'

General Science and Miscellany.

FRONT VIEW OF AN ENGLISH SUBURBAN COTTAGE.

In our last number we gave an engraving of a beautiful cottage in the rural Gothic style, recently erected at Rochester, N. Y. This style is much copied by our American neighbors. Some one has truly remarked that the architecture of our dwellings is most appropriate when it "embodies and breathes forth a *home expression*," a character to which we think the rural Gothic, with its quaint, independent, comfortable and extended air, seems fully to lay claim.

We now present to our readers an engraving of an English Cottage, well suited to the peculiarities of a suburban residence. Many cottages in the above style are to be seen in the suburbs of London, and other large cities. Several handsome dwellings in the English style have recently been erected in the neighborhood of this city, and as many of our readers have English tastes in these matters, we present them the above as a neat and not costly model, which may afford them some useful hints. The size will be determined by the necessities of the case, and the proportions can, of course, be easily maintained by the builder.

NATURAL PHILOSOPHY.

NO. II.

General Properties of Bodies.

There are certain properties, which appear to be common to all bodies, and are hence called the *essential properties of bodies:* These are, *Impenetrability, Extension, Figure, Divisibility, Inertia,* and *Attraction.*

Impenetrability is the property which bodies have of occupying a certain space, so that, where one body is, another cannot be, without displacing the former;—for two bodies cannot exist in the same place at the same time. A liquid may be more easily moved than a solid body; yet it is not the less substantial, since it is impossible for a liquid and a solid to occupy the same space at the same time. For instance, if a spoon be put into a glass full of water, the water will flow over to make room for the spoon.

Air is a fluid differing in its nature from liquids, but no less impenetrable. If we endeavour to fill a phial by plunging it into a basin of water, the air will rush out of the phial in bubbles, in order to make way for the water.

If a nail be driven into a piece of wood, the nail pene-

trates between the particles of the wood, by forcing them to make way for it; for not a single atom of the wood remains in the space which the nail occupies.

Extension.—A body which occupies a certain space, must necessarily have extension; that is to say, *length, breadth,* and *depth:* these are called the dimensions of extension, and they vary extremely, in different bodies. The length, breadth, and depth of a box, or of a thimble, are very different from those of a walking-stick or of a hair.

Height and depth are the same dimensions; if you measure a body, or a space, from the top to the bottom, it is called the depth, if from the bottom upwards, it is called height. Breadth and width are also the same dimensions.

The limits of extension constitute *figure* or shape; a body cannot be without form, either symmetrical or irregular.

Divisibility is a susceptibility of being divided into an indefinite number of parts. Take any small quantity of matter, a grain of sand, for instance, and cut it into two parts; these two parts might be again divided, had we instruments sufficiently fine for the purpose; and if, by pounding, grinding, or any other method, we carry this division to the greatest possible extent, yet not one of the particles will be destroyed, and the body will continue to exist, though in this altered state. A single pound of wool may be spun so fine as to extend to nearly a hundred miles in length.

The melting of a solid body in a liquid, also affords a very striking example of the extreme divisibility of matter; when you sweeten a cup of tea, for instance, with what minuteness the sugar must be divided to be diffused throughout the whole of the liquid. Odoriferous bodies afford an example of the same thing. The odour or smell of a body is part of the body itself, and is produced by very minute particles or exhalations, which escape from odoriferous bodies, and come in actual contact with the nose.

When a body is burnt to ashes, part of it *appears* to be destroyed; the residue of ashes, for instance, is very small compared to the coals which have been consumed. In this case, that part of the coals, which one would suppose to be destroyed, goes off in the form of smoke, which, when diffused in the air, becomes invisible. But we must not imagine that what we no longer see no longer exists. The particles of smoke continue still to be particles of matter, as much so as when more closely united in the form of coals. No particle of matter is ever destroyed; this is a fact which must constantly be remembered. Everything in nature decays and corrupts in the lapse of time. We die, and our bodies moulder to dust; but not a single atom of them is lost.

It should be observed, that when a body is divided, its surface or exterior part is augmented. If an apple be cut in two, in addition to the round surface, there will be two flat surfaces; divide the halves of the apple into quarters, and two more surfaces will be produced.

Though divisibility is very often included among the essential properties of matter, chemistry teaches us that the ultimate elements of bodies are incapable of further division; yet they are material substances.

Inertia expresses the resistance which inactive matter makes to a change of state. Bodies appear to be not only incapable of changing their actual state, whether it be of motion or rest; but to be endowed with a *power of resisting* such a change. It requires force to put a body which is at rest in motion; an exertion of strength is also requisite to stop a body which is already in motion. The resistance of a body to a change of state is, in either case, called its inertia. In playing at cricket, for instance, considerable strength is required to give a rapid motion to the ball; and in catching it we feel the resistance it makes to being stopped. Inert matter is as incapable of stopping of itself, as it is of putting itself in motion. When the ball ceases to move, therefore, it must be stopped by some other cause or power, which you will understand better after we have treated of the next and last general property of bodies.

Attraction is the general name under which we may include all the properties by which atoms of matter act on each other, so as to make them approach or continue near to one another. Bodies consist of infinitely small particles of matter, each of which possesses the power of attracting or drawing towards it, and uniting with any other particle sufficiently near to be within the influence of its attraction. This power cannot be recognized in minute particles, except when they are in contact, or at least appear to be so: it then makes them stick or adhere together, and is hence called the *attraction of cohesion.* Without this power solid bodies would fall to pieces, or rather crumble to atoms.

The attraction of cohesion exists also in liquids; it is this power which holds a drop of water suspended at the end of the finger, and keeps the minute watery particles, of which it is composed, united. But as this power is stronger in proportion as the particles of bodies are more closely united, the cohesive attractions of solid bodies is much greater than that of fluids. It is owing to the different degrees of attraction of different substances, that they are hard or soft; and that liquids are thick and thin. The term *density* denotes the degree of closeness and compactness of the particles of a body; the stronger the cohesive attraction, the greater is the density of the body, whether it be solid or liquid. In philosophical language, however, density is said to be that property of bodies, by which they contain a certain quantity of matter, under a certain bulk or magnitude. *Rarity* implies a diminution of density, thus we should say, that mercury or quicksilver was very dense fluid; ether, a very rare one. We judge of the density of a body, by the weight of it; thus we say, that metals are dense bodies, wood, comparatively a rare one.

Capillary attraction is an interesting variety of the attraction of cohesion. In tubes of small bore, liquids rise a certain height within them, from the cohesive attraction between the particles of the liquid and the interior surface of the tube. The smaller the bore, the higher will the liquid rise. All porous substances, such as sponge, bread, linen, &c. may be considered as collections of capillary tubes. If you dip one end of a lump of sugar into water, the water will rise in it, and wet it considerably above the surface of that into which you dip it. Capillary attraction probably contributes to the rise and circulation of the sap in the bark and wood of vegetables.

Attraction of gravitation differs from that of cohesion, inasmuch as the latter influences the *particles* of bodies at *imperceptible* distances, whereas the former acts upon *masses,* and at *any* distance, however great. Let us take for example, a very large body, and observe whether it does not attract other bodies. What is it that occasions the fall of a book when it is no longer supported? You will say that bodies have a natural tendency to fall. That is true; but that tendency is produced by the attraction of the earth. The earth being much larger than any body on its surface, draws to it every other, which is not supported.

Attraction being mutual between two bodies, when a stone falls to the earth, the earth should rise part of the way to meet it. But when, on the other hand, you consider that attraction is in proportion to the mass of the attracted and attracting bodies, you will no longer expect to see the earth rising to meet the stone. There are, however, some instances, in which the attraction of a large body has sensibly counteracted that of the earth. If a man, standing on the edge of a perpendicular side of a mountain, hold a plumb line in his hand, the weight

will not fall perpendicularly to the earth, but incline a little towards the mountain.

If the air did not impede the fall of bodies, attraction would make them all descend with equal velocity. It may be objected, that since attraction is proportioned to the quantity of matter which a body contains, the earth must necessarily attract a heavy body more strongly, and consequently bring it to the ground more rapidly than a light one. In answer to this, it must be observed that bodies have no natural tendency to fall any more than to rise, so that the force which brings them down, must be in proportion to the quantity of matter it has to move. Thus a body consisting of a thousand particles of matter, requires ten times the force of attraction to bring it to the ground, in the same space of time, that a body consisting only of a hundred particles does.

There are some bodies which do not appear to gravitate; smoke and steam, for instance, rise instead of fall, but it is still gravity which produces their ascent. The air nearer the earth being heavier than smoke, steam, or other vapours, not only supports these light bodies, but, by its own tendency to sink below them, forces them to rise. The principle is just the same as that by which a cork, if forced to the bottom of a vessel of water, rises to the top as soon as it is set at liberty. Balloons ascend upon the same principle, the materials of which they are made, are heavier than the air, but the air with which they are filled is considerably lighter; so that, on the whole, the balloon is lighter than the air which is near the earth, and consequently rises.

RISE FROM A HUMBLE CONDITION.

In a speech delivered by the Hon. and Rev. the Dean of Ripon, at a late soiree of the Mechanics' Institution, Leeds, a few passages occur worthy of being widely circulated:—

"I like to think with pleasure, and satisfaction, and wonder, of the extraordinary advancements which in the providence of God, particular individuals have made, who have just been able to apply the operations of their minds according as they were able to exercise them, and thereby to place themselves in extraordinary positions both in relation to their own prosperity and to the advantage of the country. It may be a very familiar subject, but it is one which I do like to think of, and I will just allude to it. There was a young man who was the youngest of thirteen children, and his father a very poor man; and the best his father could do with him was to apprentice him to a barber. In that humble and praiseworthy class of public life, that respected individual demeaned himself honorably, as long as he chose to continue in it. He then bestowed his care and enterprise upon preparing the beautiful hair of our heads—improving it to that degree that it should be fit to make a wig of. In that he excelled also. Then, gentlemen, he betook himself to a weed which I have seen, and which is a little more than like a weed—I mean the cotton plant of Carolina. He betook himself to the manufacture of cloth made out of that weed. He gained a great success, adding merely to the acquirement which he possessed—which you may suppose were slender—the knowledge which he could pick up by associating with his fellow-men, he gained that success which enabled him to decide the ware of the linen and the cotton, so that a vestment should be made all of cotton. The barber's apprentice, gentlemen, that honorable improver of our hair, for the purpose of a wig, was Sir Richard Arkwright, afterwards high sheriff of his county, and who left his family half a million of money. Well, gentlemen, I only put this as one instance of a simple, plain man, honestly following the call of Providence, using the mind according as God's Providence gave him the opportunity of drawing forth its resources—throwing himself into the opening which was prepared for him, and thus gaining a prosperity exceeded by no man in this country; and I am sure that language is not equal to say the advantage which our nation has received from his invention, enabling him thus to show the benefit of the exercise of the mind, and talent, and energy and reflection, and desire for improvement in the humblest station of life. I will mention another case, because I do dwell upon it, I confess, with exceeding interest, from my personal acquaintance with the individual. Gentlemen, it is no more than forty years since, in my travels in America, I came to New York, and I called upon the famous Gen. Moreau, with whom I had the pleasure of being acquainted. He said to me, 'Well, here's a strange thing! here's a ship to go by hot water! and to-morrow the trial is to be made, and I am invited to be of the party, and my friends. Will you go with me?" I accompanied Gen. Moreau in the first steam vessel that sailed on the Hudson, in America, under the auspices of Mr. Fulton, the inventor—a man of similar caste of Arkwright, perhaps with some greater advantages from early education, but of a similar tone and cast of mind; unsatisfied with what he had done, and what he could do, and always thinking that he could do something better, and thankful for every information he received, and every opportunity he could gain in making progress in some improvement; so that from a painter in portraits, from a designer in a variety of ways, at last he arrived at the extraordinary eminence and success of making the first practical steam vessel which could navigate so severe a river as the Hudson.

Now, gentlemen, I remember with pleasure standing upon the deck with Robert Fulton, and dwelling with him upon the subject. I remember asking him, "Do you think it will ever be of any good?" I recollect his countenance lighting up almost with indignation at the idea that any invention of his could fail of being useful. I remember very well, just as we approached the mouth of the Hudson, just as it shuts on the Atlantic, saying—"What will become of us if we drift out to sea? How is it possible that a vessel of this sort can stand the waves of the ocean?" Well, now, gentlemen, when I compare and bring together that day, with the fact of the steamers now crossing the Atlantic in eleven or twelve days, with a regularity and precision which is always marvellous—why, how is it possible not to see and to be persuaded that there is not a man that lives, and comes within the arena of popular and scientific institutions like this, who has not an opportunity of being distinguished, by giving his talent, industry and energy, to whatever subject in the course of his investigation the finger of Providence may point out to him? It is impossible to say, unless we believe that we have arrived at the acme and fulfilment of everything for the good of man—it is impossible not to think that we may be conferring some great blessing upon our own country—that we may, through the means of some individual in the very humblest class, whose mind we may touch, by just giving him a perception and an intuition of combination connected with science and art—we may render him an instrument of great good to his country and the world, and a source of great happiness and pride to himself."

WASHING LIQUOR.—A correspondent who calls himself the 'Washerwoman's Friend,' says, 'There is now a washing liquor sold in Sheffield at the most extortionate price, beautifully labelled;' but for the benefit of washerwomen, who are generally the really deserving poor, we will impart the wonderful secret which has been obtained from head-quarters, viz., Mr. Twelvetrees:—1 lb. of soda, 1-2 lb. of lime, and 1-2 lb. of soap. The soda and soap are boiled together, and the lime alone in two quarts of water; and then, after, being boiled, are used as required. The receipt can be as well manufactured by a poor washerwoman as by a scientific chemist.

Editors' Notices, &c.

Professor Johnston. — We are indebted to the courtesy of Professor Johnston for a copy of his address delivered at Syracuse, to a portion of which, we have the pleasure of directing the attention of our readers, in the present number; and hope to find room for the remainder in our next.

A Friend to Canada is informed, that the matter to which he refers has for a considerable time engaged our attention. That agriculture is, and must for a long time continue, the staple interest of Canada, is a self-evident truth. We shall be happy to receive his co-operation, and will instance, for the present, one mode in which he, and others, may serve their country, by referring to the interesting and instructive reports from the Ottawa District, which appeared in our last number, and are completed in the present. We hope to receive many such from different districts, and feel sure that the directors of the Provincial Association will do everything in their power to disseminate the information through the province. We hope that, as political excitement subsides, the newspapers will do more in promoting this great object, and thus aid us in meeting the wishes of "a friend to Canada."

Horticulture.—In reply to the expressed wishes of several subscribers, we beg to say that we have the promise of assistance from some practical gardeners; and that we shall be able to make our paper the medium of such plain instructions in this department, as are adapted to the wants of this country. We shall always be happy to receive hints or information bearing on the interesting pursuits of the horticulturist. We shall have some original articles on these subjects, before the season commences for practical operations.

W. F.—Guano, when genuine, is a powerful fertiliser, but varies very much in its composition; it sometimes contains a large quantity of silica, or sand. We doubt whether it could be procured in this country at a price which would enable our farmers to use it profitably. For horticultural purposes, or limited applications, it may answer a good purpose. The seeds you mention have not, to our knowledge, been tried in Canada, but they would probably succeed well. These are matters which cannot be decided but by carefully conducted experiments; and our agricultural societies could not do better than to aid the progress of such trials and investigations.

Agricola.—From your description, we think your soil must be deficient in lime. Your cultivation is too shallow, and you have not sufficiently varied your crops. Plough two or three inches deeper, and apply 100 bushels of quick lime per acre. The lime will not need repeating for several years.

H. K., Stamford.—The names sent by you are no doubt those of "good" persons, as you state, but we have adopted the principle and must rigidly adhere to it, of *advance* payments. We have lost so much already by the opposite system, that we have determined not to open any books, except with societies. If you make up the number to twelve, and remit us 3s. 9d. each, we will forward them at once.

D. K., W. Gwillumbury.—Your remarks on the use of lime are very good, but the theory of its operation has been often explained in our pages. If you have any *facts* to illustrate your theory we would willingly insert them. The other matter to which you refer is, we fear, some distance in the future. You say you are not a subscriber; why not become one? If you wish to encourage improvement, that will be one way of showing it.

MARKETS, &c.

There was a little more firmness in the British Corn Markets at the date of our last advices (Jan. 11th), but the stocks of foreign grain on hand were excessively large. Wheat and Flour, equivalent to 12 millions of quarters, it is said, was imported during the past year. The average price of Wheat in Mark-lane market, December 22nd, was only 38s. 9d. per quarter. Barley 25s. 9d. Oats 15s. 9d. Rye 22s. 9d. Beans 27s. 5d. Peas 28sr 11d. The autumn had been unusually favorable for wheat sowing, and a very large extent of ground has been cropped with the first necessary of life.

New York and Montreal markets are heavy for wheat and flour, as well as for provisions.

In Toronto but little business has been transacted. Wheat 3s. 9d. *a* 4s. 3d. per bushel of 60 lbs. Spring Wheat 2s. 6d. *a* 3s. 6d. Rye 2s. Barley 1s. 8d. *a* 1s. 10½d. Peas 1s. 6d. *a* 1s. 9d. Oats 1s. 2d. *a* 1s. 3d. Flour 18s. *a* 20s. per barrel.

The winter hitherto has been remarkably open and mild, with but little snow. The season for sowing wheat having been favorable last fall, the plant attained a vigorous growth, and we have not as yet heard of its suffering to any extent from exposure. The most critical time, however, has not yet arrived. Snow has fallen for some days past, and the weather is much colder, and sleighing good to the north of this city—February 7th.

Impressions of Medals.—A very easy and elegant way of taking the impression of medals and coins, not very generally known, is thus described by Dr. Shaw: Melt a little isinglass glue with brandy, and pour it thinly over the medal, so as to cover the whole surface; let it remain on a day or two, till it is thoroughly dry and hardened, and, then taking it off, it will be fine, clear, and as hard as a piece of Muscovy glass, and will have a very elegant impression of the coin. It will also resist the effects of damp air which occasions all other kinds of glue to soften and bend, if not prepared in this manner.

The Sale of Arsenic Unnecessary.—There exists no earthly reason why a law should not go forth to-morrow, forbidding at once and for ever the retail sale of arsenic in this country. Arsenic is asked for to kill rats, mice, bugs, and other vermin; to form a solution for steeping wheat in before sowing; for dressing scabbed sheep; and for preparing the skins of birds for stuffing. The destruction of rats and mice, says Dr. Ure, is more effectually accomplished with the German poison, made of phosphorus and lard, with this great advantage, that upon eating it the animals immediately go in quest of water, and die away from the olfactories of the family. The same gentleman stated that arsenic will not kill bugs, and that camphine will. Dr. Ure and Dr. Tunstall agree that, for steeping wheat, arsenic is far inferior to the sulphate of copper, which is used extensively on the Continent, and that its continued employment for that purpose is as barbarous in science as in practice it is unsafe. Medical jurisprudence, said Dr. Tunstall, has demonstrated that arsenic, applied to an abraded or ulcerated surface, is absorbed, and finds its way to the stomach as certainly as if it entered by the mouth, while agricultural experience reveals that death from unknown causes is a very common occurrence among sheep to which arsenical dressings have been applied, and it is prudent to suspect the presence of the poison in the animals slaughtered for human food, which have undergone this treatment. The skins of birds may be dressed with corrosive sublimate. In resuming his opinions, Dr. Ure said, "I am quite sure that arsenic is not of any use for the purposes for which it is commonly sold by chemists and druggists." — *Scottish Agricultural Journal.*

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, } Editor,
WILLIAM McDOUGALL, } Assistant Editor.

VOL. II. TORONTO, MARCH, 1850. No. 3.

The Canadian Agriculturist,

Published Monthly, at Toronto, C. W.

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INDIAN CORN—ITS PECULIARITIES.

There have been observed some singular anomalies, in the hybridization or mixing of different varieties of corn, that are difficult to explain.

A field of yellow corn, planted in the neighbourhood of a white variety, which flowers at the same period, at the distance of half a mile, or even more, will, when ripe, exhibit the mixture in a greater or less degree, according to proximity; and these grains are not *half bloods*, but apparently entire yellows and entire whites. This change is performed by winds alone, as the bee and other insects do not meddle with the silk, which is the pistil or female organ—for this plant is *monœcious*, having its male and female organs in distinct and separate flowers, and not in the same receptacle. This fact can be easily demonstrated, by clipping a part of the silk, or covering it with a piece of fine cloth; every fibre destroyed, or covered, will produce a failure of kernel or grain on the cob.

One of the unexplained circumstances adverted to, is the fact, that an ear of corn, having white kernels mixed with the yellow, when planted promiscuously, the apparently perfect white kernel, does not produce a white ear, nor a hybrid between the two, but yellow corn—generally a little mixed, the white in no case predominating. The same singularity occurs in mixing the Tuscarora and sweet corn, and the red, (or kissing ears of old times), that occasionally occur, do not produce, on planting, the kind from which it was derived.

Another singularity in its tendency to change, is the fact, that any variety of our climate, on being removed to Southern Ohio, Indiana, or more southern States, changes its character and form of kernel—enlongates and shrinks at the crown, and *dents*—runs into an increase of rows, from eight to twenty-four.

A Mexican variety, in which every kernel is husked, like a common ear of corn, on being grown in this climate, will the first year produce ears one half or more entirely naked; and, on the second or third planting, be changed into a common eight rowed variety, not distinguishable from some of the kinds in common use. There is a slow change and mixture of varieties and colors, we are aware, affected in time; yet the small eight rowed, and the large eight rowed—the Dutton twelve rowed—are still to be found, intact, and pure, which would hardly be expected, where adjoining farms grow often very different varieties. According to the well established doctrine, that all species cross and mix, all strong and peculiarly marked varieties ought to run into one common character, the joint blood of all the races.—*Rural New-Yorker.*

AGRICULTURAL SOCIETIES.

Proposed Amendment of Statute.—Board of Agriculture.—Education, &c.

We deem it our duty to invite the earnest attention of our readers to that portion of the proceedings of the Provincial Association, inserted in another place, authorizing the formation of a Committee, for the important purposes of drafting new bills for the government of the Association, and the other Agricultural Societies in the province; and also to address the legislature on the propriety of establishing a Board of Agriculture, and an Agricultural Chair in the University of Toronto, in connection with an illustrative or experimental farm. The propositions originated, we believe, with the honourable Adam Fergusson, than whom no one is better qualified, from his long experience and social position, for aiding their practical realisation, and this meeting responded to them, with the most perfect cordiality. Differences of opinion there may be relative to details in the carrying out of these important objects; but upon the great and vital question itself, that the time has fully arrived in this country when patriotism and intelligence should enter into an indissoluble combination for the noble object of stimulating Canadian enterprise and industry, and of developing our immense agricultural resources, there can, we think, be but one opinion among those capable of comprehending the subject. That something must speedily be done in the direction indicated by the resolution refered to, cannot for a moment be doubted; unless the people of this country will remain content in a *stationary* position, engrossed with their own petty and most injurious party jealousies, while the rest of the world is rapidly marching onwards. The people of the United States have been, for a considerable time, awaking to a consciousness of the paramount claims of agriculture, and they are now giving palpable evidence of the sincerity and depth of their convictions, in disseminating agricultural knowledge, and in aiding discovery by original investigations, by the establishing of experimental farms, and endowing agricultural chairs and lectureships, in many of their public seats of learning. The same has been done in the British Isles, and in most of the countries of Europe, where agriculture is esteemed of national importance. And in these days of unrestricted competition, that people who neglect the duty of instructing the masses in the principles of the arts they pratice, must necessarily be left behind in the race of competition. The united province of Canada, and we may add the whole of British America, possesses many great advantages; nature has dispensed her bounties on many large areas of this portion of the earth's surface with no niggard hand. The genial climate and extensive virgin soils of the Upper Province, equal in natural fertility to the richest lands of the mother country; the wide spread water power and manufacturing capabilities of every considerable section of these extensive regions, and withal our unrivalled lake and river navigation to the Atlantic, that mighty ocean which bears on its bosom by far the largest portion of the world's commerce; with all these immense natural advantages does it not become our sacred duty to improve and apply them under the guidance of intelligence and public spirit; and to cultivate among ourselves a generous, confiding and conciliatory disposition? The great improvements which have already been made under many disadvantages, in some sections of the country—quite equal, we believe, to what have been accomplished, under similar circumstances, in the United States—indicate, most unmistakably, the untold blessings which are in store for Canada, whenever an enlightened, united and vigorous national feeling shall have supplanted the distrust and jealousy engendered by the antipathies of races, party strife and clamour. In the working out of an improved and better state of things, we regard the diffusion of sound knowledge, in its widest acceptation, as an essential preliminary condition; and, therefore, every effort that is put forth for raising the moral and intellectual standard of the producing masses of the people, has a strong claim for support upon every good citizen.

We have almost unconsciously been led into these remarks, under the impression with which we commenced, of the desirableness of introducing agricultural instruction both into our colleges and schools; and we have no doubt that the Directors of the Provincial Association will be sustained in their efforts to accomplish this purpose, by the intelligent and high-feeling portion of the people. The Chief Superintendent of Schools, and the Board of Education for this section of the Province, have already shown that they are not insensible to the claims of agriculture to occupy a place in the general routine of education.

We ought, perhaps, to say that in the Board of Agriculture, which it is proposed to establish, it is not intended to render the members thereof any pecuniary remuneration for their services by the Government. The main duties of such a board will be to collect and disseminate information, and generally to watch over the agricultural interest of the country; similar to what is done by a chamber of commerce, or board of trade, for commercial objects. We think the two might, in this country, be of mutual service to each other; and very frequently render useful aid to the government.

In reference to the proposed new statutes, for the government of the Provincial Association and Agricultural Societies, the Committee will be happy to receeive the opinions or suggestions of parties interested in the subject. The attention of the officers of Agricultural Societies is particularly requested to the matter, and it is hoped that they will put themselves, without further notice, in communication with the Secretary of the Association, without delay, in order that the committee, before drafting the bills, may have the advantage of the advice and be made acquainted with the wishes and opinions, of competent parties interested in the subject, residing in different sections of the Province. As the Provincial Association will offer a larger sum of money for premiums this year than heretofore, it is hoped that the Agricultural Societies of the Province will, as heretofore, render a liberal support.

MEETING OF THE AGRICULTURAL ASSOCIATION OF UPPER CANADA.

The annual meeting of this Society was held in the Court-House, in this city, on Wednesday and Thursday, the 20th and 21st ultimo. After the disposal of some preliminary business, during which E. W. Thomson, Esq., occupied the chair, Thomas Clark Street, Esq., Second Vice-President, presided through the remainder of the day, and also the day following. Mr. Street evinced the greatest interest in the proceedings, and his active services will prove a great acquisition to the Society. The attendance on the first day was more numerous than usual, but the time of holding the meeting, however convenient in other respects, is not suited to persons residing at a distance. This matter was talked over, and it is probable the difficulty may hereafter be removed.

The absence of the President, John Wetenhall, Esq., M.P.P., who was unable to carry out his arrangements for attending this meeting, elicited an expression of general regret; particularly as he was known to have devoted much attention to some important matters relative to an improved system of managing the business and exhibitions of the Society. We also missed the presence of the Hon. Adam Fergusson, without whom no considerable agricultural meeting, affecting the interests of Canada, seems to be complete. Our readers will regret to hear that Mr. Fergusson's absence was occasioned by a recent attack of serious illness. We are happy, however, in being able to state that the hon. gentleman is now making satisfactory progress towards convalesence.

The President's bye-law, and that of J. B. Marks, Esquire, both of which appeared in this journal for October and December, 1849, were fully discussed. The reader will find the result in the by-law which we subjoin, and which is substantially that of Mr. Wetenhall's with a few additions and modifications principally from Mr. Marks's. It is to be hoped that these amendments will prove in their practical operation, to promote the efficiency of the Society's operations, and secure, beyond what has hitherto been realized, a uniform system of management.

A letter was read from J. B. Marks, Esquire, Chairman of the Executive Committee at Kingston, stating that in consequence of not having received the Government grant for the Midland District, the Committee was not able to close their accounts, and forward their report, as they had hoped to do before the annual meeting. We are glad, however, to learn that there is a prospect of a balance remaining in hand after all demands are paid, a circumstance as encouraging to the friends of the Association, as it is creditable to the management of the Executive Committee. And as we learn that the Government grant has now been paid, the Committee will soon be able to bring their labours to a close.

The Finance Committee presented their report, which will be found below. It will be observed, that by the liberal aid of Government, the Association, will shortly be placed in a condition free from debt.

It will be seen from the resolutions inserted below, that the next exhibition will be held at the Town of Niagara; the inhabitants have promised £300 towards the local expenses. It was anticipated by some, and we confess ourselves to have been among the number, that the Falls would have been the favoured spot; but it was considered by a decided majority of the meeting that, taking all things into consideration, the ancient Town of Niagara offered the most convenient and accessible site. Visitors after seeing the exhibition may very readily proceed to the Falls, and witness one of the greatest natural phenomena in the world. The local Committee at Niagara, will doubtless make the best possible arrangements for the cheap and easy transit of stock and articles for exhibition, as well as for the accommodation of visitors.

The prize-list will appear in the *Agriculturist*, the beginning of April. Additional prizes will be given to Durham and Grade Cattle, also three premiums for heavy dray horses, as a distinct class. We deem it inexpedient to lose a moment in announcing a number of premiums offered in reference to the great Industrial Exhibition of all nations, to be held in England in 1851, under the patronage of Her Gracious Majesty and the Prince Consort.

For the best set of Drawing-room Furniture made of black walnut, diploma and £15; second best £10. The same for a set made of curled maple. Best specimen of Broadcloth, diploma and £5; 2nd. £3. Blankets the same. Tweed Cloth, diploma and £3; second £2. The above articles to be sent by the exhibitors to the show in England. For the best barrel of Flour £3; second £2. Second best 25 bushels of Wheat in Canada Company's Class £12 10s. The first prize being £25, given as usual by the Canada Company.—The Chief Commissioner has consented to allow the wheat obtaining this prize to be sent to England. Best Cheese £4; second £3; third £2.—The same for Butter, neatly packed in firkins, of not less than 56lbs. each. The four latter articles to remain the property of the Association, and to be sent home at the Society's expence.

It is most ardently to be desired that a vigorous and united effort be made at once, towards securing a full representation of the characteristic productions of this extensive colony, in the metropolis of the empire. Here will be a splendid opportunity for promoting the great interests of our country, in bringing under the notice of people from every civilized region of the world, her choicest productions both of nature and art—of showing loyalty to our beloved Sovereign and filial affection for our Fatherland; and of recognising in the bonds of a common brotherhood the wide spread family of man.

BY-LAWS.

At a meeting of the Agricultural Association of Upper Canada held at Toronto, the 20th day of February, A.D. 1850, pursuant to notice, as directed by the Act of Incorporation, the following By-Laws were passed and ordered to be appended to, and form part of, the Constitution of the said Association:

1. The Board of Directors (the presence of at least

three being necessary to constitute such Board) or a committee thereof, shall meet daily during the exhibition and shall transact all the business connected therewith, which shall not have been previously entrusted to others, and all questions of importance which shall arise during the exhibition shall be submitted to the said Board, whose decision shall be final.

2. The ex-Presidents of the Association shall be ex-officio members of the Board of Directors.

3. The Secretary shall, if necessary, make frequent visits previous to the show, to the place selected, and if required shall remain there two or three weeks before the exhibition takes place.

4. The Secretary shall be a member of the local committee as well as of every sub-committee thereof.

5. The Secretary shall (subject to approval by the Board of Directors) prepare the necessary account books, superintend the entering of articles for exhibition, the preparation of the judges' books, and the pay lists, the issuing of badges and tickets of entrance into the show grounds, and all other matters connected with the management of the show, which are not of a local character.

6. The Secretary shall have charge of all account books and other documents relating to, and being the property of the society.

7. The Secretary shall (subject to approval, as aforesaid) engage the services of competent persons to act under him as heads of departments: one to take charge of the ticket office, another of the office for general entries, &c.; and in making his selections, the Secretary shall have in view the probability of obtaining the services of the same parties at future shows, in order to establish as far as practicable a uniform system of management.

8. The Board of Directors shall appoint an acting Treasurer, who shall attend at the show-ground during the exhibition, and for as many days before and after that time as the Board of Directors or committee thereof may require.

9. The said acting Treasurer shall give such security for the due performance of his duties, and shall receive such remuneration as shall be respectively decided upon by the Board of Directors.

10. It shall be the duty of the acting Treasurer to take charge of all monies collected by the society previously to the day of exhibition (excepting such monies as are collected by the local committee for local purposes,) to take charge of monies collected at the gates of the show-ground as well as of monies paid for badges, subscriptions of members, tickets for stock, &c.

11. The acting Treasurer shall pay the premiums at the time appointed by the Board of Directors, and shall pay such premiums in accordance with the pay lists, to be furnished him by the Secretary.

12. The acting Treasurer shall, at as early a day as practicable after the exhibition, make out a full and fair statement of all monies received and disbursed by him (audited as the Board shall direct) and shall deliver the same to the Secretary of the association, and shall deposit the balance of monies received, if any, in the Bank of Upper Canada, to the credit of the association, which money, together with all other monies deposited in the said bank to the credit of the association, shall be subject to the order of the President of the association, countersigned by the Secretary thereof.

13. For the purpose of assisting the Directors in making the necessary arrangements before and during the exhibition, a local committee shall be appointed, to consist of not more than five and not less than three, which committee shall be appointed by the Board of Directors at the February meeting, unless previously elected at the general meeting: and that the said local committee shall have power to add to their numbers, provided that the whole number of the said committee shall not exceed fifteen.

14. The President and Vice Presidents for the year, as well as the ex-Presidents, shall be ex-officio members of the local committee, in addition to those appointed by authority of the preceding clause.

15. The local committee shall have power to appoint sub-committees to superintend the several arrangements devolving on them.

16. The local committee shall appoint a local Secretary and a local Treasurer, and shall require from the said Treasurer suitable securities for the due performance of his duties.

17. The local committee and its officers and agents shall have power to collect subscriptions and receive donations, for the purpose of paying the local expenses, and shall pay all monies so collected to the local Treasurer.

18. The local committee shall select the ground for the exhibition, and contract for the fencing in of the same, as well as for the erection of the necessary buildings, booths and pens, and provide provender for stock, and make such other arrangements as may be necessary for the safe keeping of all articles exhibited.

19. The local committed shall make arrangements with steam-boat proprietors and rail-road directors, in order to facilitate access to the exhibition: and shall make similar arrangements with hotel keepers and other individuals, so as to have good accommodations provided for visitors.

20. The members of the Agricultural Societies of the several townships within the county or united counties, wherein the annual exhibition may be held, and the members of the Society of the said county or united counties, shall be also members of the association for that year, and have badges accordingly; provided the Agricultural Societies of the said townships, or the Society of the said county or united counties shall devote their whole funds for the year, including the government grant, in aid of the association; and that the office-bearers of the societies of other townships in other counties, and the office-bearers of the societies of such counties as shall have made donations or shall have contributed towards the Provincial Show (in the case of townships not less than £10, and in the case of counties not less than £25,) for that year, shall also be furnished with badges of membership and shall have free entry into the grounds of the exhibition.

21. No member of the Board of Directors, or of the local Committee, shall be concerned in any contract or work of profit, directly or indirectly, as surety or otherwise, ordered to be performed for the use of the association.

22. The words "From among themselves" in the first line of the 5th clause of the printed constitution, appended to the Act of Incorporation, shall be struck out of the said clause.

23. Any Mechanics' Institute or other scientific society, contributing to the funds of the association an amount equal to that of a County Agricultural Society, shall be entitled to all the privileges of such county society with respect to office-bearers.

THOMAS C. STREET, *Chairman, 2nd. Vice-President.*
GEO. BUCKLAND,
Secretary of Association.

RESOLUTIONS.

Moved by Mr. Sheriff Ruttan, seconded by E. W. Thomson, Esq.,—That the thanks of this meeting be given to the president, John Wetenhall, Esq., and to John B. Marks, Esq., for the drafts of by-laws which they submitted to the Society.

Moved by J. Ketcheson, Esq., seconded by James Boulton, Esq.—That the thanks of this meeting be given to the mayor, corporation and citizens of Kingston, and to the various societies and individuals, that made grants of money in aid of the funds of this Association, for their valuable support.

Moved by G. D. Wells, Esq., seconded by James FitzGerald, Esq.,—That the thanks of this meeting be given to the Ladies' Committee at Kingston, for the handsome and efficient manner in which they sustained their department of the Exhibition.

Moved by Mr. Sheriff Ruttan, seconded by E. W. Thomson, Esq.,—That the thanks of this meeting be given to Mr. Sheriff Treadwell and the gentlemen who so readily acceded to his request, for the valuable report on the agriculture of the Ottawa District, with which they favoured the Association.

Moved by R. L. Denison, Esq., seconded by W. McDougall, Esq.,—That Professor Johnston, of the University of Durham, be admitted an honorary member of the Agricultural Society of Upper Canada; and that the warmest thanks of this meeting be given to that gentleman for his kindness in coming among us at the late Exhibition in Kingston, and for the very interesting and instructive address which he delivered on that occasion.

Moved by E. W. Thomson, Esq., and seconded by Mr. Sheriff Ruttan,—That the services of our Secretary, Mr. Buckland, for upwards of two years, entitle him to the thanks of the Association, and that the Treasurer be hereby authorised to place to the credit of Mr. Buckland, the sum of £50, so soon as that amount is in his hands.

Moved by G. Dupont Wells, Esq., seconded by Mr. Sheriff Ruttan,—That the President, John Wetenhall, Esq., M.P.P., Hon. Adam Fergusson, E. W. Thomson, William McDougall, G. D. Wells, and George Buckland, Esquires, be a Committee to draft an amended Bill for the Provincial Association; also an amended Bill for the Regulation of Agricultural Societies; and to prepare an address to both branches of the Legislature on the importance of establishing a Chair of Agriculture in the University of Toronto;—a Board of Agriculture and an illustrative or experimental farm;—the said drafts and address to be submitted to the Directors at their first adjourned meeting.

Moved by John Cade, Esq., and seconded by Matthew Joness, Esq.,—That the secretary be authorised to purchase the necessary books for keeping the accounts and entering in a regular manner the proceedings of the Society.

Moved by Franklin Jakes, Esq., seconded by E. W. Thomson, Esq.,—That Matthew Joness, John Cade and George Buckland, Esqs., be a sub-committee for the purpose of revising the premium list, and reporting to the meeting to-morrow morning at 10 o'clock.

Moved by E. W. Thomson, Esq., seconded by G. D. Wells, Esq.,—That the report of the committee on the prize list be adopted, with the exception of the classes Q and R, and that a committee, consisting of Rev. Dr. McCaul, Mr. Justice Draper, The Vice Chancellor and George Dupont Wells, Esq., be appointed for revising these two classes, and that they be requested to report to the secretary within ten days; their decision to be final, provided the usual aggregate amount heretofore awarded to these classes be not exceeded.

Moved by E. W. Thomson, Esq., seconded by Matthew Joness, Esq.,—That the proprietor of the *Agriculturist* be requested to publish the prize list in the April number of that journal; and that he be authorised to print 2000 copies in pamphlet form, at the expense of the Association, for distribution among the county and township societies.

Moved by G. D. Wells, Esq., seconded by Matthew Joness, Esq.,—That Mr. James Fleming, Yonge Street, Toronto, be appointed seedsman to the Agricultural Association of Upper Canada.

Moved by Wm. McDougall, Esq., and seconded by the Hon. Captain Irving,—That E. W. Thomson, Esq., be one of the two Judges selected by this Association to assist in awarding the prize of His Excellency the Governor General, for the best Essay on the bearing of the canals on the interests of the agriculture of Canada.

Moved by R. L. Denison, Esq., and seconded by G. D. Wells, Esq.,—That Mr. Sheriff Ruttan be the other judge.

Moved by Mr. Sheriff Ruttan, seconded by Matthew Joness, Esq.,—That the next Exhibition of this Association be held at the town of Niagara, in the third week of September, 1850.

Moved by E. W. Thomson, Esq., seconded by G. D. Wells, Esq.,—That Walter H. Dickson, M.P.P., Andrew Heron, Richard Hescott, John Simpson, Esqs., and Mr. Sheriff Kingsmill, be the local committee, with power to add to their number, in accordance with the by-law of the Association.

Moved by E. W. Thomson, Esq., seconded by Mr. Sheriff Ruttan,—That R. L. Denison, Esq., be the acting Treasurer of the Association.

Moved by E. W. Thomson, Esq., seconded by James Boulton, Esq.,—That the directors meet at Niagara on the Tuesday of the show week, for the purpose of forming the various committees; and that the secretary communicate with the county societies, requesting them to forward a list of the names of such persons as are competent and willing to act as judges, naming the class in which they will act; and that the secretary also communicate with Mr. Allen of Buffalo, with a view to obtain the services of American judges.

FINANCE COMMITTEE'S REPORT.

The Committee appointed to settle the financial matters of the Association for the year 1847,

BEG LEAVE TO REPORT:

That having met on several occasions for the purpose of ascertaining the amount of the liabilities of the Association, from the few books and papers which they obtained with a great deal of difficulty—they, on the receipt by them of certain funds to meet the liabilities of the Association for the year (1847), gave public notice that they would attend in Toronto and Hamilton, on certain days named, for the purpose of adjusting and paying the various claims existing against the Association, which they accordingly did in Toronto on the 16th and 19th of January, and two of the Committee attended at Hamilton on the 23d and 24th of the same month.

The Committee found in the hands of Mr. Kerr, at Hamilton, thirty-eight volumes of books of various kinds, the property of the Association, of which the Committee have handed over to the various parties entitled, all which have heretofore been claimed. There are still on hand several volumes, most of which are yet due for premiums, and retained in the hands of your Committee for distribution amongst the several parties to whom they are due, so soon as they may be claimed. There still remains as yet unclaimed the sum of eighty-four pounds for premiums,

The amount received by your Committee is as follows:—

Government Grant, in Debentures,	£350	0	0
Edmundson's Securities,	120	0	0
Cobourg balance,	74	7	3½
Hon. Adam Fergusson,	3	0	0
Interest on Cobourg bills,	2	19	2
Two life Member's subscriptions,	5	0	0
Total,	£555	6	5½

Paid			
Premiums, &c., Toronto, ...	£163	4	0
Ditto, Hamilton, ..	100	13	9
Amount of Fergusson's and Wetenhall's note to liquidate claim agts. Simpson,	97	11	9
Ditto against Roach, ...	80	10	3
Expenses of Committee at Toronto and Hamilton, including stationery and fare.	6	3	7½
	£448	3	4½
Balance in hand.	£107	3	1

Leaving in the hand of your Committee the sum of one hundred and seven pounds three shillings and one penny. Eighty-four pounds of which are still due, but are as yet unclaimed.

Your Committee beg further to report, that there is an additional claim of thirty-six pounds fourteen shillings and nine pence, which has been presented to your Committee by Messrs. Freeman & Jones, as bills of costs for defence of two suits above mentioned; which said bills have been placed by your Committee in the hands of a professional gentleman for taxation.

These two claims, together amounting to one hundred and twenty pounds fourteen shillings and nine pence, when paid will leave a deficiency of thirteen pounds eleven shillings and eight pence.

Your Committee beg further to report, that they have been made aware that there is now in the hands of the Sheriff of this county an execution against the late Secretary, Mr. Edmundson, for the purchase of books from Messrs. Saxon and Miles, in the United States, which have been charged by Mr. Edmundson to the Association, and which have been allowed in the settlement of his account. Your Committee conceive that although no legal claim exists against the Association for the same, yet they respectfully recommend that the amount of the invoice should be paid so soon as the funds of the Association will permit.

All which is respectfully submitted.

E. W. Thomson,
Geo. D. Wells,
Rich'd L. Denison,
} Committee.

Toronto, C. W., February 19, 1850.

AGRICULTURAL SOCIETY OF THE MIDLAND DISTRICT.

We learn from the *Chronicle and News*, that at the recent annual meeting of this society a letter was received from J. B. Marks, Esq., the President, tendering his resignation. As Mr. Marks has discharged with great satisfaction the duties of that office for 20 years, and is known to many of our readers as a zealous promoter of agriculture, we embrace the opportunity of transferring his letter to our own pages. We are glad to find that Mr. Marks will be so well succeeded in the person of Angus Cameron, Esq. We observe further that Peter Davy and Wm. Holditch, Esqs., have been deputed delegates to the next Provincial Exhibition to be held at Niagara, and that £25 were voted towards that object.

To the Members of the Midland District Agricultural Society.

Gentlemen:—About twenty years ago the Legislature of Upper Canada, with the judicious view of encouraging Agriculture, passed an Act granting to each District an annual sum of money for that purpose.

Upon the passing of that patriotic act, the inhabitants of the Midland District first established this Agricultural Society, and we elected the Hon. John Macaulay, (then Chairman of the Quarter Sessions) President, who continued most ably to fill the Agricultural Chair, until he was removed to an official government appointment at Toronto.

At the following annual meeting, the members elected me to fill the vacancy, and I have remained without interruption, president, until the present time.

Last year it was my intention to have requested permission to retire from this responsible office, but in consequence of the annual Agricultural Exhibition of the province, being voted to take place at Kingston in the year 1849, it was thought best that I should remain and share the difficulties that devolved upon the members of our society, in making provision for that great exhibition. That grand affair being over, in which the inhabitants of the city of Kingston, and the farmers of the Midland District so nobly supported the good cause of that national institution, the benefit of which will be long remembered in this part of the country, we have now to fall back upon the common business of the district society and its several branches, which are now being carried on in the usual manner.

The parent or district society being free from debt, and every prospect of greatly improving in usefulness, my reasons for desiring to be relieved have much increased since last year. I beg to return to our agricultural friends my best thanks for their uniform support, respect, attention, and forbearance, given for so long a period to my official operations amongst them; and with my best wishes for the success of your future proceedings, I respectfully relinquish into your hands the office of president of the Midland District Agricultural Society; and I do so with the satisfaction of knowing that many persons can be found among our present members well qualified to fill that high station.

I have the honour to be, gentlemen, your faithful friend,

J. B. Marks.

Barriefield, Feb. 20, 1850.

SPIRIT OF THE AGRICULTURAL PRESS.

Canada Thistles.—The complete extirpation of this pest is exceedingly difficult, particularly in wet or stony ground. A correspondent in the last number of our talented contemporary, the *Genesee Farmer*, suggests a plan for destroying thistles, which is both simple and efficacious. He recommends a *free* and *timely* use of the plough; that is to say, in summer-fallowing a field infested with this troublesome weed, give a deep and clean ploughing as soon as the leaves of the thistles fairly appear above the surface, a process that will often require repetition. It is a well-known fact in vegetable physiology, that no plant can long survive the repeated destruction of its leaves, which may be said to be a kind of breathing organs, somewhat analagous to lungs in animals. We have seen hundreds of acres of the richest pasture land in England literally covered with thistles, but in two or three years scarce a plant was to be found left. This result was obtained without breaking up the pasture, simply by cutting the root about an inch under the surface with a sharp instrument, significantly designated a "*thistle spud*," and by repeating the operation as long as any leaves make their appearance. In arable land we have found, in addition to deep ploughing, the use of a powerful cultivator or subsoil plough,

of the greatest service. As the roots of the thistle in dry rich soils penetrate very deep, it frequently becomes necessary, in order effectually to extirpate this enemy, to disintergrate the soil to the depth of twelve, or even eighteen inches. But in case of weeds, as in maladies of the body, *prevention* is the better cure; and every careful farmer, when his land is once free from noxious intruders, will use diligently the proper means of *keeping it clear*. A slovenly farmer, harbouring and maturing upon his land weeds instead of grain, is an absolute nuisance to a whole neighbourhood.

Highland Agricultural Society.—We perceive, from our recent Scottish exchanges, that this important society, the first that was formed in Great Britain, and which has done so much for the advancement of Agriculture, not only in Scotland, but in various parts of the world, continues in a flourishing condition. The monthly meetings of members, held in Edinburgh, have become still more attractive, and the chemical department of the society is in a promising condition; although it has not as yet received that degree of support which is requisite for the full realization of its important objects. Dr. Anderson, the Society's chemist, had performed during the year a considerable number of analyses, some of them involving extremely complex and minute investigations. He is actively engaged in a series of analyses of the turnip, grown on different soils and with various kinds of manure. Another series of analyses has been commenced of the wheat soils of different districts of Scotland, with a view of determining the standard constitution of such soils. The exhibition for 1850, will take place in Glasgow; and an effort is making to have the meeting of 1851, at Perth. We are glad to see that the society is likely to be able to resume its annual exhibitions.

Drain Tile Machine.—We had the pleasure at the New York State fair held at Syracuse, of an introduction to that enlightened and enterprising agriculturist, John Delafield, Esq., of Oaklands, Seneca County, N. Y. Mr. Delafield informed us that he had recently imported from England a machine with its various appliances, for making tiles, pipes, &c. for purposes of draining; a subject which is engaging the earnest attention of the farmers of the state of New York. The high price of draining materials has been hitherto an almost insurmountable obstacle to the successful introduction of this most indispensable branch of agricultural improvement. In the last number of the *Genesee Farmer*, there is an illustrative cut of Mr. Delafield's machine, which we perceive comprises the recent improvements made in England, and also a list of prices for the different sizes of pipes and tiles, which we subjoin for the information of our readers—

DRAIN TILES.

4 inches high,	by 15	inches long	at	$15	per 1000	tiles.
3 "	"	"	"	12	do.	"
2 "	"	"	"	10	do.	"
Soles for the above, if required,				$6.26	per 1000,	largest size
"	"	"	5	"		smallest size

DRAIN PIPES.

4 inches diameter,	15	inches long,	at	$16	per 1000	pipes
3 "	"	"	"	14	"	
2 "	"	"	"	10	"	
1½ "	"	"	"	9	"	
1 "	"	"	"	8	"	

Pipes of larger size can be made by this machine, also semi-cylinders of 6 and 11 inches diameter. Roof and ridge tiles are turned out with equal facility.

The above rates are considerably higher than those in England. Greater experience, however, will after a while facilitate production and lower prices. As there are many parts of Canada where draining is much needed, and where little or no stone, of a suitable description, can be found, we think that sufficient encouragement should be given to enterprising persons, either by societies or otherwise, to get a few of these machines introduced. If such an enterprise were done judiciously, it could not fail to be profitable to the parties engaged, and of immense benefit to the country.

Diffusion of Agricultural Knowledge.—In order to create and satisfy a taste for agricultural knowledge and rural improvement throughout the American Union, it has been proposed by several influential parties to print a large number of suitable tracts for gratuitous circulation, at the expense of the federal government. There are not less, it is calculated, than four millions of farmers in the United States, not one in ten of whom reads an agricultural book or journal. Several fresh plans appear to have been either commenced or projected for giving a vigorous impulse to the advancement of agriculture. The object is most patriotic, and richly deserves success.

Precariousness of the Wheat Crop.—We asked Mr. Thomas, of Oakland, what success he had as a wheat grower: in reply, he smiled significantly, and shook his head; and upon being a little further interrogated, owned that he had not had a decent crop of wheat in five years. Last year, he had two hundred and ten acres, and it looked finely, and gave promise of an abundant yield, until just before harvest, but just as he was about to put forth his hand to reap the reward of his toil, the spoiler came and disappointed all his hopes. From his 210 acres, he only had 1800 bushels, which, he remarked, was about one-third of a crop, fifty acres of it having been put in on shares. The crop scarcely paid expenses.—*Michigan Farmer.*

Good Farming.—Mr. John Johnston, near Geneva, has on his farm a cow, which probably gives more milk than any other cow in the United States. Through the month of June, 1848, she gave forty-two quarts per day, which is probably without any parallel in this country. From the cream only, they made fourteen and a half pounds of butter per week. Had they churned from the milk, they would have got more butter. The cow was milked three times a day. The only feed she got was grass in the pasture. She is of a roan color, half Durham and half native breed, and is seven year old.—*Journal of Commerce.*

THE HOG.

The following note was received too late for insertion in the December number, and was mislaid until after the matter for the February number was set up. We make this explanation as an apology to our respected friend the writer.

Woodhill, Dec. 16, 1849.

Dear Sir, — Although the accompanying note from Mr. Kerr (a considerable produce merchant in Hamilton) conveys little that is worthy of record, yet as it bears testimony to the estimation in which the Canadian settler's *invaluable friend, the hog*, is justly held, you may perhaps spare it a corner in your excellent and improving paper; improving, I will add, in more than one sense of the term. The animal referred to is from the well-known breed of Mr. Harland, near Guelph. I got him nearly four years ago, and through his aid have obtained a very satisfactory breed of swine. I killed a lot of hogs last week, about fourteen months old, each of which weighed over 200 lbs. I can safely pronounce them to be *true* and *quick* feeders. They run out all summer, and after about six weeks' feeding with peas, weighed as above. The pork is white and beautiful as the most delicate veal. Mr. Harland's stock is the large white Yorkshire. The sow I use is a mixed Berkshire.

I remain, Sir, yours truly,

ADAM FERGUSSON.

Hamilton, 7th Dec. 1849.

Hon. Adam Fergusson, Sir,—I beg to acknowledge the receipt of one of the *finest hogs* that has been offered in this market this season. Its actual weight is 532 lbs. I have shewn it to several individuals who are well acquainted with the different breeds of hogs, and they pronounce it the best specimen of the *pork kind* they have ever seen.

Yours, &c.
W. G. KERR.

THE STATE OF AGRICULTURE IN EUROPE.

An Address delivered before the New York State Agricultural Society, at Syracuse, Sept. 13, 1849, *by James F. W. Johnston, F. R. S., S. L. & E.*

(Concluded from page 39.)

GREAT BRITAIN.—In striking contrast to the case of Spain, is the agriculture of the Island in which I was born, and from which so many of your forefathers have come. I need not tell you of our uncertain climate—our fickle sky, our frequent rains, our late frosts in spring, our early frosts in autumn, the cold winds and temperate suns of our most favouring summer, the mists and fogs that settle over us at every season of the year. I only remind you of these things, and ask you to contrast with them the large crops we can reap, the high rents we can pay, the poor lands we have enriched, the local climate we have ameliorated, the wide wastes we have subdued beneath the plough, the northern districts we have tamed down to the production of wheat, the large population we have reared, and in ordinary seasons are still able to feed, and—amid all the croakings and complaints of individuals and of classes—the vast amount of material comfort and of intellectual elevation which the island exhibits. How much kinder, on the whole, the Deity has really been to us than to prolific and sunny Spain; how much better our fortunes as a people, how much happier our individual lot!

PRACTICAL IMPROVEMENT IN GREAT BRITAIN.—Among the greatest of those practical improvements *in the treatment of land*, by means of which British agriculture has been advanced to its present condition, I may mention:

1st. *The alternate husbandry*—a judicious rotation of crops. In this walk Flanders was probably the earliest among modern European countries to make decided and important advances.

2d. *The introduction of thorough drainage.*—To a certain extent and in a certain way, under drains have been made in almost every country of Europe, and are at least as old as the time of the Romans. But the necessity and almost universal profit of the system as it is now understood and practised, was first demonstrated in Scotland, and owes its general introduction to MR. SMITH, of Deanston.

3d. As the complement of thorough drainage, the introduction of *deep and sub-soil ploughing*. These practices have renovated shallow, worn out soils, by bringing up new materials; have opened a passage for the roots to descend deeper in search of food; and have provided a more ready outlet for the surface waters into the drains below.

4th. *The judicious and continued application of lime*—according to principles now beginning to be generally understood. When applied without the requisite knowledge, or without regard to future consequences, the use of lime has been, and will still be, one of the most ready means of exhausting the most fertile soils.

5th. *The use of bones*—in various forms, as an application to land in various conditions, and for the growth of various crops.

6th. Generally, what is called *high farming*, comprehending:

a. The culture of green crops extensively.

b. The making of rich home, and the purchase of valuable foreign, manures of various kinds to a great extent.

c. The rearing and feeding of improved breeds of stock, for the conversion of one form of produce into another, which meets with a readier market, or is otherwise more profitable.

d. The custom of *full feeding*, both for plants and animals, from early youth to full maturity.

It is the characteristic of this kind of farming, that it spares no reasonable expense—in implements, in manures, in labour—as all experience has shown that a liberal treatment of the land, makes the land liberal in return: and that to the stingy farmer, the land is most niggard of her crops.

7th. *The introduction of lighter and better contrived implements*, of machines to economise labour, and of horses having a quicker step.

Such are generally the practical methods or processes by which British agriculture has been advanced to its present condition.

In connection with this improved condition of British agriculture, and the practices it involves, you will excuse me if I advert for a moment to one aspect in which British agriculture may be regarded, which at the present moment is most vitally connected with the interest of the English farmer, and may be neither uninteresting nor uninstructive to you.

Were an intellectual foreigner, previously unacquainted with Great Britain, with the character of its people, or with its social condition, to be informed regarding this country, that though occupying only a small and thickly peopled corner of Europe, shrouded for many months of the year in fogs and mists, seldom and briefly visited by the fervid sun—never, I may say, by such a sun as now shines upon us—and raising its own grain crops with cost and difficulty to feed its rapidly increasing inhabitants—were he to be told that the Legislature of this country, in which the agricultural body is the predominating interest, had thrown open its inland harbours to all comers, and trusting to superiour energy, perseverance and skill, had invited even the most fertile and favoured regions of the globe to a free competition in their own grain markets, fearless of the results;—apart

from all fiscal theories or political views with which my profession and pursuits forbid me to intermeddle, I ask you, if such a foreigner, so instructed, could fail to admire the open boldness, to look with respect on the resoluteness of such a country, or to long for an opportunity to study, not only the character and habits of its people, but the modes of culture practised by them, with so much success, in a region so unfavoured by nature?

And were he actually to come among us, it would be easy for him, having started from the Land's end, to proceed from one warm hearted and hospitable farmer to another, till the Pentland Firth arrested his course, and all his journey long he might converse with cultivators of ardents minds, full of practical and general knowledge, who in most unpromising circumstances refuse to despond, and while they see so much every where around them awaiting the hand of the improver, will not let slip the anchor of hope; who differing widely, perhaps, in politics, and as to the policy of certain fiscal regulations, yet feel alike that to resolute men the conquest of the stubborn land is as sure as the dominion of the sea; that new difficulties only demand new exertion and that new energies are equal to meet new emergencies.

On quitting the British shores, after such a tour, that foreigner would carry with him a true impression of the flower of English and Scottish Agriculturists, and his first admiration of the resolute firmness, and his estimate of the skill of the island farmers, would be confirmed and strengthed by his actual survey.*

In other parts of the world I might fear lest my audience should accuse me of over exalting, by such language as this, the character of my own country and its people. You, who feel so just a pride in the noble land you possess, will know how to make allowance for my pride in mine. But indeed whatever can be truly said of the spirit and energy of British farmers, may, I begin to feel, already he said, with almost equal truth, of the farmers of your Northern states. Of the west and south I cannot as yet, from personal observation, speak. In Nova Scotia and New Brunswick, two younger Provinces, I have seen a picture of what Maine and New Hampshire, and Massachusetts especially, have been: and in the gradual conquest which persevering labour has in these states achieved over drifted rocks and hungry gravels, and sandy barrens, and ungenial swamps, I discover the resolute spirit still living of those men who centuries ago dared to cross a then wide and little known sea, in search of new and freer homes, and whose descendants now till alike the soils of the Old England and the New. Time has not impaired the energy and enterprise of either; I believe I may say it has left their hearts unchanged too.

And now you are ready to ask me, what those, who in Europe are most in advance in the practice of the rural arts, look forward to as likely to help on agriculture still further. In what especially, you will enquire, do we of Great Britain trust, who have thrown down the gauntlet to the farmers of the world? These questions I shall answer by drawing your attention briefly, to what may be regarded as the characteristic or living feature of the agriculture of our time—what you no doubt expect me briefly to speak of, the direct applications, namely, of natural science to the several branches of rural economy.

The main purposes for which natural science is applied to rural economy, are—

First. To explain the reasons of practices already adopted, or of things already observed, and to supplant old and defective by new and better usages.

Second. To establish general principles, by means of which a short cut is provided for the unlearned, to the knowledge, practical and theoretical, we already possess. A single principle explains and thus recommends or forbids many practices, according to the circumstances of the soil, place or season.

Third. To enlarge our actual knowledge by new discoveries susceptible of practical application.

On these several objects of natural science, in its applications to agriculture, it would be out of place at present to dilate. It will be sufficient if I briefly draw your attention to some of the general results, in reference to rural economy, at which science has already arrived.

With this view I might draw my illustrations from any one of the many different branches of natural knowledge. I might select for example:—

1st. The general relations of *Physical Geography*, to the art of culture—such as

a. The influence of broad seas and of great lakes and rivers, of tides, of sea currents, and of prevailing winds, on the capabilities of a country and the practices and profits of its cultivators.

b. The influence of mountain elevations and depressions, of high table lands and of low level plains—or

2d. The general indications of *Geology* in regard to the fertility of a country, the branches of husbandry to which it is best adapted, and the means by which its fertility may be best promoted.

The Geological Map of this State and the volumes of the Natural History Survey, afford abundant illustrations of the relations of this science to practical agriculture —or

3d. The relations of *Meteorology* and *Botany* conjoined —such as

a. The adaptation of certain plants to certain climates —of sugar, cotton and rice to warmer; of buckwheat, and Indian corn, and wheat, to warmer and drier; of rye, barley and oats, to colder and more uncertain climates.

b. The nature of rust, smut, mildew, the maize, brand, &c., and the circumstances of local climate most favourable to their appearance—or

4th. The relations of *Geology* and *Vegetable Structure* conjoined—such as

That certain plants and soils are mutually adapted to each other, because of the special structure and natural habits of the plants, and the physical characters only of the soils.

The valley of the Mohawk, for example, is remarkably prolific in Indian corn, and raises comparatively little wheat—while the district of Syracuse produces wheat abundantly, and is less favourable to corn. So in Great Britain and Ireland, we have our turnip and barley soils, distinguishable readily, by the practical man, from the wheat and clover soils. These differences are independent of chemical composition, and are not to be explained upon chemical principles. They are dependent upon the special relation which the structure and natural habits of the plants bear to the physical characters of the medium in which their roots are made to grow—or

5th. The general indications of *Geology* and *Meteorology* conjoined—such as

The relations of the nature of the rocks, of the soil, and of the fall of rain taken together—

a. To the necessity for under drainage, and the means of effecting.

b. To the necessity for artificial irrigation, and the easiest mode of obtaining a supply of water for the purpose—or

* For two recent estimates of the condition of Agriculture in Great Britain, see
WECCHERLIN. *Ueber Englische Land-wirthschaft und deren Anwending auf Land-wirthschaftlihe Verhaltnisse insbesondere Deutschlands. Stuttgard and Tubingen*, 1845. And
COLMAN'S *British Agriculture*. London and Boston, 1840.

6th. The general relations of *Zoology* and *Animal Physiology*.

a. The breeds of domestic animals, and to the preservation of their purity.

b. To the rearing, feeding and general tending of stock.

c. To the agency of animal life in fertilizing the soil.

d. To the attack of insects upon our cultivated crops —or

7th. The general indications of *Chemistry*—such as

a. That a fertile soil, in addition to various organic compounds, contains at least eleven different mineral substances.

b. That plants contain, usually, or in most of their parts, the greater number of the same mineral substances.

c. That the animal, as a whole, also contains them, but distributed throughout its several parts in a manner different from that in which they are found, either in the plant or in the soil.

d. That the plant standing, as it were, between the soil and the animal, prepares for the latter both its organic and its mineral food.

e. That an intimate and beautiful relation exists between the soil, the plant and the animal—or between the living and the dead things of nature—or

8th. The general indications of *Geology* and *Chemistry* conjoined—such as

a. That certain Geological formations are especially rich in some of the mineral substances found in and required by plants, and produce soils which with special treatment will prove fertile and profitable to the cultivator.

b. That others are especially defective in some of these substances, and form soils which are naturally unproductive.

c. That some abound in all kinds of mineral matter which plants require, and yet yield soils which are naturally unfertile.

I. Relations of Geology to Agriculture.

From any one of these general topics, I might select beautiful examples of the close bearings of science upon profitable farming—but time does not permit me to illustrate in detail any one of the general relations to which I have referred. A few observations, however, in reference to the special applications of Geology and Chemistry, will neither detain us long, nor prove, I believe, generally uninteresting.

In reference to Geology, I could have wished to point out to you the very close economical connection which recent discoveries have established between practical geology and practical agriculture—how the manufacture and abundance of valuable manures, for example, is actually dependant on the progress of geological discovery. I must be content, however, with a brief allusion to the geology of the United States.

There are few countries, indeed, which more clearly than your own, show the relations which geology bears to agriculture in all its branches. Your wide prairies are naturally distinguished from your vast forest lands, by the character of their soils, and these again by the geological structure of the regions over which they extend, and from which they are generally derived. The broad treeless zone of calcareous marl, or rotten limestone—called the prairie or cane-brake country—which crosses Alabama in an east and west direction,* owes its natural nakedness to the dry, waterless, chalky deposits, which for a depth of hundreds of feet form the uppermost rocks of the country; and the tenaceous, soapy, unctious quality of the soil, with which the carriage wheels of travellers in that state, in wet weather, become familiar, is owing to the same cause.

So your zones of differing timber, as you ascend from the alluvial swamps of the shores in your Southern states, across the eocene and cretaceous beds to the mica slate, gneiss and granite of the Appalachian chain, are the consequences and indications of diversities in geological structure. The swamp willow, the cypresses, (*thyoides* and *disticha*) the swamp hickory, the green palmetto, the tall magnolia, the red maple, and the cotton wood of the lowest swampy spot—the hickory, oak, magnolia, beech, walnut, tulip tree, and holly, of the dry alluvial bluffs—the perpetual pines of the tertiary (eocene) sands—the naked prairie of the cretaceous marles—and the mixed oaks, hickory and pines which appear on the primary rocks—all these zones of different timber indicate the natural connection of the vegetation of a district with the nature of the rocks on which it rests.

Nor are these geological relations of vegetable life without their influence on the daily movements of your shifting population. I have elsewhere shown how directly the movements, the natural expansion I may call it, of our first class farmers in Scotland, is not only influenced but actually, as it were, prescribed, by the geological character of the district in which they have been brought up and to which they intend to move.† So it is among you. "Those who go southwards from Virginia to North and South Carolina, and thence to Georgia and Alabama, follow, as by instinct, the corresponding zones of country. The inhabitants of the red soil of the granitic region keep to their oak and hickory; the 'crackers' of the tertiary pine barrens, to their light wood; and those who inhabit the newest geological formations in the sea islands, to their fish and oysters."§

And to this illustration of a fact, which may be proved, I believe, by observation in every country of the globe Sir Charles Lyell adds a sentence, from which I am sure you will at once draw an important, practical lesson. "On reaching Texas, all these different classes are at fault, because the cretaceous in that country consist of a hard, compact, siliceous limestone, which defies the decomposing action of the atmosphere, and forms table lands of bare rock, entirely unlike the marles, clay and sand, of the same age, in Alabama.

The tillers of the red land, of the pine barrens, of the marshy prairies, and of the sea island swamps, are equally at a loss when they migrate to a country of which the soils and surface differ from all they have left. And how is this? Because they have no familiarity with those general principles of chemical science on which all culture on all soils depends—because, if they wish to continue the same kind of tillage, and on soils similar to those they have left, they have not such a knowledge of the general principles of Geology as would enable them at once to say, to this or to that country I must go, for there alone am I likely to find them.

In my own country, I have been accustomed to press upon the agricultural community the importance of such geological knowledge to them, because of the numerous colonies we possess in all parts of the world, and because of the swarms of emigrants we yearly send off to subdue and people them.* But to you whom I now address, who already occupy, or in connection with kindred blood are destined to subdue and people, nearly half a world—how much more important must such knowledge be! Your westward movement will continue for many generations, and how much surer will the way to wealth be to your hardy pioneers, if they have been taught in their early homes, not only how to choose land, but where to look for the kind they wish to buy, and how to till it best, whatever it may be, when it has come into their possession.

I ought, perhaps, to apologise for saying so much on

* Lyell's Second Visit to the United States, p. 42, 89.

† See an article in the Edinburgh Review for March, 1849.

§ Lyell's Second Visit to the United States, p, 110.

* See the Author's *Elements of Agricultural Chemistry and Geology, fifth Edition*, p. 616.

this subject. To you, who have expended so much public money, and so large a measure of talent in developing the geological structure and natural resources of this and other states, it may appear presumptuous in me to urge further upon your attention, what you have shown that you already so fully appreciate. I may plead as an excuse, that in a country where all action originates, and all power centres in the masses, a brief discussion of the subject before a great meeting like this, may help new listeners towards a proper general estimation of the practical value of science—and that what I have said will not fail in being useful to scientific agriculture, if it convince a single undecided voter in this great commonwealth of the worth of those aids which science offers you, in developing the resources of the soil.

II. Relations of Chemistry to Agriculture.

Permit me now to say a few words on the subject of chemistry, in its relations to agriculture.

The special applications of this science, as many of you are already aware, are far too multiplied to admit even of enumeration. Of the practical ends which have been more or less perfectly attained by means of chemistry, I might mention such general ones as these:

1st. In what *general* exhaustion consists, how it is produced, and how it may be repaired?

2d. In what *special* exhaustion consists, how it is brought about, either naturally or artificially, and how it is to be corrected?

3d. What plants, in general, require to make them grow well?

4th. What manures ought to contain, to be generally serviceable; what, with a view to special purposes, they ought specially to contain; and how they are to be artificially prepared?

But such topics are too general and indefinite to make a sure impression on the mind of the practical farmer, in the brief moments I have spent in enumerating them.

I mention further, therefore, such special points as the following:—

1st. How to bring crops to earlier ripeness in late and elevated districts.

2d. How to reduce the straw producing tendency of the land.

3d. How to hasten to promote, or to push forward laggard, yellow, and stunted vegetation.

4th. How to strengthen the straw of your grass crops, where they are liable to be laid.

5th. How to fill the ear and make it larger, where long culture or natural poverty has reduced its size.

6th. How to improve the deficient feeding quality of turnip, and other root crops, when grown on mossy land.

7th. To quicken the organic matter in dead, deaf, or peaty soils, and make it available for the nourishment of plants.

8th. To prepare artificial manures, which shall nourish any crop on any available soil.

9th. To promote growth on *slow*, and to retard it on *quick* soils.

10th. On newly brought up subsoils, and on trenched land, what manures ought to be used, and why.

11th. Why a rotation of manures, as it is called by practical men, is necessary and where.

12th. That the use of lime to a certain extent, and in a prudent way, is necessary to the highest fertility.

13th. That saline and nearly all other manures, do more good upon light and open, than they do upon stiff and close soils, and why.

14th. How to economise the consumption of vegetable food, and to adapt it to the purpose for which the animal is fed.

15th. How to prevent the disease called *fingers and toes*, in turnips and other roots, and how to render mildew and ague equally rare?

To do these and many simil things economically, skilfully, and with more or less success, are among the practical ends to which chemical investigations have already led us.

They also supply answers to many practical questions, such as:—

1st. Why cabbage crops so greatly exhaust the soil, and how such exhaustion is to be repaired?

2nd. Why tares cut green exhaust the land, and give inferior wheat?

3d. Why tares are seldom good after crops of clover?

4th. Why lime produces a more marked benefit on one soil than it does upon another?

5th. Why one variety of lime is more useful generally, or in particular districts on particular farms and fields, than another?

Of special points and questions, I could enumerate many more, in regard to which chemistry may be said to have been, or to be capable of becoming, of obvious money value to the farmer. Even to such of you, however, as have not much attended to this subject, the above examples will sufficiently indicate both the kind of connection which exists between practical agriculture and practical chemistry; and the kind of uses to which such scientific knowledge may hereafter be put, in advancing the important art, which it is the first wish of this great Society, and the individual interest of many of its members most zealously to promote.

Limits of Human Skill.—But in dwelling upon and illustrating what is already in the power of man, and what he hopes to attain in reference to agriculture through the aids of science, I would not forget to acknowledge how very limited his knowledge is, and how feeble his capacities after all.

A mysterious fungus attacks the potato, and for years spreads famine and misery, and discontent and depression, among millions of industrious farmers.

A minute fly, season after season, hovers over our wheat fields, and from entire provinces and states almost banishes the cultivation of our most important grain.

A long continued drought, such as half a century past has scarcely seen, dries up our meadows and pastures, and drives the farmer to his wits end, to obtain winter sustenance for his necessary stock.

Such things as these ought to prevent us from boasting of our knowledge, and to enforce upon us that piety and humbleness of spirit, which rural occupations themselves so naturally foster—while at the same time they should not restrain us from any effort or enquiry by which the evils themselves may be mitigated or removed.

It is possible—nay, it is almost within the bounds of a reasonable expectation—that the same intellectual research which has given us dominion over the proud waves—has made out the laws by which hurricanes are regulated—has already almost freed us from their most fierce influences—and has found the fiery lightning to descend harmlessly from heaven—that the same research may finally free us from the visitations of the fungus and the insect, and may place the dreary droughts of summer under reasonable control. Such hopes we may entertain, not as sources of pride, but as stimulants to exertion—for in so greatly rewarding the past exercise of our intellectual powers, the Deity obviously intends still further to excite us to study and extract good from the living and dead things of nature, over which He has given us a general dominion.

Obstacles to Progress.—There are, however, in every country, certain obstacles which oppose themselves to the progress of scientific agriculture, as a branch of knowledge, or to its practical application in the improvement of the soil.

I do not refer to those physical or local obstacles of

climate, elevation above the sea, low prices, distance from markets, and so on; but to those social and class obstacles which, in so many places, and in so many ways, interfere not only with the rapid extension of our knowledge, but with the diffusion of what we already possess as to the application of science to the rural arts. I may enumerate as belonging to obstacles of this kind:

1st. The aversion to theory, as it is called, which is so generally professed by practical farmers in most countries of the world. Rash and hasty theorising in regard to agriculture, it is right to reject; the error lies in confounding with such theory every thing that does not appear to bear directly upon the more common operations of the farm—as if chemistry, or the chemist for example, could be of no use to the farmer, because he does not interfere with the handling of the plough—or with the shape and management of the drill machine, or the harrow.

2d. The small amount of talent hitherto in all countries considered necessary to fit a man to become an excellent farmer. This not only lowers the general education and attainments of the agricultural class, and the estimation in which they are held—but it unfits them, as a body, readily to appreciate the labors, or to listen to the counsels of men of science, however prudent and practical they may be.

3d. The special deficiency, among all grades of the agricultural community, (in England among landlords, among tenants and among laborers,) of any instruction in the elementary parts of those branches of knowledge by which the principles of agriculture are especially illustrated.

4th. The extreme sub-division of the land, which you may not see in this country for many generations, but which already exists as a great evil in some of the countries of Europe. It prevents the use of improved implements, and therefore the encouragement of agricultural mechanics—because the farmer is too poor to buy anything but the merest necessaries. It prevents also the purchase of manures, natural or artificial, to any extent—the employment of paid labor in farming—and generally all those forms of improvement which demand an outlay of capital, or to which the occupation of a considerable breadth of land is a necessary prerequisite.

5th. An obstacle peculiar to your country, and to its present transition state—and it is really a serious obstacle to improvement—is the feeble local attachment by which the proprietors of the more newly settled districts are bound to their farms. This appears in the fact that so many of your farms are for sale. Few families have yet become so attached to their locations as to be unwilling to sell them, if a fair offer be made. The head of the family trusts to his own skill to do better elsewhere for all his household, with the money for which they may be sold. This state of things will pass away as age creeps over your commonwealths and institutions, but in the meantime it operates as a serious hindrance to the expenditure of money in embellishment or in costly improvements, which might possibly not enhance, in a proportionate degree, the value of these properties in the market.

I merely mention these social obstacles, for although some of them do, as I am informed, exist to a certain extent in this State of New York, yet I would rather express my high opinion of the much good I have found among you, than appear to detract from your just deserts, by discovering and commenting upon wants and defects which in your hurry to get forward, you have as yet scarcely had time to discover, much less to supply or remove.

Encouragement to Agricultural Science in the United States.—Of the good I see, for example, I may specify the enlightened desire exhibited by your several *State governments*, to promote the applications of science to your home agriculture, as it is strikingly shown in the numerous surveys and reports which they have caused to be made and published, in respect to the geology and agricultural capabilities of the several parts of the Union. In this respect your State of New York occupies a most distinguished position, and its inhabitants will no doubt reap from their well directed exertions, a rich harvest of deserved fruit.

Again—this great Agricultural Fair, the implements and stock here exhibited, the countless numbers who have entered the show yard to see them, and who now surround us—impress upon a foreign visitor, the obvious usefulness and efficient management of your Agricultural Societies, how much they are doing, and how zealously they are supported. To those at a distance, who cannot look upon you with their own eyes, your annual publications speak. I have myself been both interested and instructed by the former volumes of the Transactions of your Society, and I have heard them, in a public meeting in Scotland, most highly spoken of, and favorably contrasted with the published proceedings, even of the Highland and Agricultural Society of Scotland. It gives me pleasure to express my opinion, that the volume for the present year is not only equal to its predecessors, but contains matter highly creditable to the Society, and useful to the advancement of scientific agriculture.

Farther—The interest which, as individuals, you take in the promotion of agriculture, by the acquisition and application of new knowledge, may be gathered from two circumstances—*first*, from the establishment and liberal endowment of chairs of science in connection with agriculture, by private parties, in two, at least, of your state universities—a liberality at once most patriotic and most judiciously applied; and *second*, from the causes which led to the recent visit to Europe of your countryman, Mr. Colman. Him we were led to look upon as a deputy from the individual farmers of this and the adjoining states, to the farmers and agricultural assemblies of Great Britain—for it was your individual encouragement and subscriptions, I believe, and those of your societies, which induced and enabled him to come among us. As your deputy, he was every where received—every where kindly, I believe, as so kind hearted a man deserved to be—and every where with a desire to give him the fullest information on every subject that might be useful to you.

Gentlemen, in the minds of some of your countrymen whom I have met, not so I hope in yours, a wrong impression exists as to the feelings of my countrymen towards you as a community, or as individuals. We do not envy or regret your rapid growth and prosperity as a people—we are proud of it. We do not dislike you individually—we are predisposed, rather, to see good in you and to like you. Whatever sour men on either side of the water may say, you may rest assured that there is a corner in almost every heart at home, which especially warms towards the North American, whether from the Colonies or from the States, and a warm seat at many a fire side, if he will come and occupy it. It may be old fashioned, gentlemen, but we all still think at home that blood is thicker than water, and if any of you doubt it we beg you, like Mr Colman, to come among us, and honestly and frankly to try whether it is so or not.

If I were asked to give a special reason why a knowledge of the scientific principles of agriculture is more necessary among you than among any other existing people, I would mention the great extent of your territorial dominion, and the varied soils, climates and cultures, which your people encounter, as your dominion over the forest and prairies extends. When you take this fact in connection with another, which is no less

familiar to you, that a general set of your population, like a great moving tide, is carrying them towards the south and west—so that the old tillage and crops of one year are often deserted by the mover for a new form of tillage, and the culture of new crops in the next—you will see how useful to the shifting agriculturist himself it must be, and how beneficial to the whole community, that he should possess some degree of familiarity with those principles, not only of Geology to which I have already made especial allusion, but of Chemistry and Botany also, which enable him in whatever circumstances of soil, of climate or of tillage he is placed, to make the most of the advantages he happens to possess—to overcome most easily and most economically the difficulties he may have to encounter—and to employ at once his head and hands with skill in bettering his local condition.

As an agricultural people, you possess many advantages over the nations of Europe. You are not old enough to have acquired district and state prejudices, which are difficult to overcome, and which in many parts of Europe, long opposed, successfully, the importation of improvements from abroad.

I may mention, as a most intelligible illustration, the introduction of implements imported from other countries, which in Europe is a very slow process. The swing plough of Scotland, for example, has made its way into many districts of England, has been extensively introduced into some parts of France, Holland, Sweden, and even into Poland and Russia. But into Germany, where attachment to the old tools and methods is so very strong, it makes its way very tardily. And I advert to this instrument—this fundamental instrument, I may call it, of the practical farmer—because I find it mentioned to your credit, by a German writer, that the swing plough has had a much more willing and ready reception among you than among his own countrymen, and that Germany has already received many excellent swing ploughs from America.* I have seen plough irons of Scottish manufacture, in use in various parts of North America. It is said that plough irons in considerable quantities are now exported from the States in considerable numbers to England.

Whatever is good in other countries, you are very much in a condition to adopt at once. You have, as I have said, fewer old forms to break through, old methods to abandon, old tools to lay aside, and old rules and regulations to abolish. Above all, as proprietors, you work every man for himself and for the profit of his family.—Not only are feudal superiorities, servitudes, serfdom and tithes, unknown among you, but even rents are not, as with us, to be made up on two dark days of every year. What ought to stand in the way then of your rapid progress in this most important art?

Another great advantage possessed by the agriculturists of this country, you will both understand and estimate. As a nation you commence your agricultural career at a point which we have attained. The eminence which we have reached after long climbing, you start from. You have the benefit of all our knowledge and experience, and—unwearied with previous labor, or satisfied with the idea, as too many of our farmers are, that you have already done very much—you must progress beyond what we have at present attained to. And with the intellect and energy you inherit, you must and will progress. It cannot fail indeed to prove a great blessing to mankind at large, that so many new minds, unfettered by old restraints of prejudide or partial legislation, or conventional custom, are now directed in this country towards the varied arts of social life. Especially must intellectual exertion on your part, in reference to any of the arts of life, benefit us in Great Britain—whom a common parentage, individual ties of blood, and a unity of speech, connect, and whom now the broad Atlantic, more than bridged over, almost brings together again into a common home. What you think, reacts upon our thoughts; what you speak, intensely affects our speech; and your literature and ours, are read and have their influence in both countries. What each discovers sooner becomes the property of the other, than in the case of nations who speak different tongues; and a step in advance on either side of the Atlantic, carries the arts of the other side along with it. We are not selfish—perhaps I might say we are eminently unselfish—in wishing you to become agricultural improvers. But of all the arts, it may be said more truly of agriculture than of any other, that it is of no country. The producer of the common staff of human life, ought in all its perfection, to be the common property of all. In rivalling each other in our endeavours to push foward this highest art of life, Britain and America will be striving only which can do most for the human race. And if we in Britain should benefit hereafter by the advances you are destined to make,—beyond what you have obtained from us,—it will enable us only the more speedily to aid in diffusing a knowledge of these advances among the other nations of the globe.

What is the moral of this discourse, what its immediate application to you whom I have the honor to address?

Is there improvement any where—let it be seen among you. Is there agricultural progress any where—you ought not to stand still. Are there means of bettering the modes of culture any where—you possess the same. Is there greater knowledge any where—it is within your reach. Is there energy and determination any where—these qualities are inherited in as great strength by you as by any other people. Is the climate favourable any where for special kinds of culture—you possess all climates, and may take a leaf from the farming book of every country. Is knowledge necessary any where—it is so among you; if not because of an over-crowded, yet because of a constantly moving, and at present rather retrogade agricultural population.

And if in consequence of its progressive tendency, the Teuton blood of the Anglo-Saxon shade, is destined, as some believe, to conquer and possess this vast continent from sea to sea: it is surely the wish and purpose of the Deity, that such possession should be made a source of happiness both to the ruling and to the ruled, and a means of furthering at the same time. that general advancement of the human race which all philanthropists so ardently anticipate.

But this conjoined happiness and pregression demand the constant aids of augmenting knowledge. In your western migrations, you must bear with you, to plant on your new soil, the arts and sciences and daily discoveries of the east; and thus will population and civilization extend together to the shores of the wide Pacific.

And among the branches of knowledge which you will most carefully carry with you, those which relate to the arts of rural life, will, above all others, contribute largely to the temporal welfare of your speading people. That which we know in England, you soon learn to master and apply here; and what is known in the Empire State, ought, in like manner, to diffuse itself hence over the vast dominions of your great confederacy.

Though I have considered it my duty, in conformity with your request, to lay before you the observations I have put together in the present address—it would be presumptuous in me, after what I have seen in this show-yard, and in this city, to suppose that any thing I could say, would materially hasten the progress of agriculture among you, or turn you into any better paths than those you have already begun to follow. If any

* *Ueber Englische Landwrithschaft von A von Weckherlin.* Stuttgard, 1845. p. 81.

man wishes an evidence of what you are in energy, and what you are capable of in action, let him come to Syracuse, and look around him. It was brought as an accusation against the ancient Romans, that they made a country desolate, and called that peace. It is the nobler praise of the great modern Republic, that you find a country desolate, and cover it with people—a wilderness, and you plant it with fertile farms—furnished with rare wigwam encampments, and you strew it over with splendid palaces and great cities. Energy, discernment, constructive talent and administrative skill, must all be united to accomplish such results, so rapidly, so safely, so securely. I thank you for inviting me to come among you, that I might see all this, and might enjoy the gratification which the sight of progress of such a kind imparts. It will be to me a source of future satisfaction, if I shall be able, on reflection, to believe that my visit to your country has in any way contributed to the further or more safe advancement among you of that pursuit, which is the surest support of nations—whether in the Old World or in the New.

ROOT CROPS—BREEDS OF CATTLE, AND CHEESE MAKING IN NEW-BRUNSWICK.

The Directors, thinking it might be of service to obtain the opinion of Mr. Robert Gray, a practical farmer, recently from Scotland, on various points of husbandry, the following is his reply to their application:—

OAK PARK, *Fredericton*, Oct. 24, 1849.

To the President of the St. John Agricultural Society:

Sir,—In answer to your request to furnish you with my mode of cultivating turnips, my opinion of what kind of cows are best adapted for dairy purposes, what rotation of crops I think would be most suitable in this country, and the way in which "Dunlop" cheese is made, I beg to submit the following:—

THE CULTIVATION OF TURNIPS.

Land intended for turnips should be ploughed in the fall, especially if it has any portion of clay in its composition. It has thus the benefit of the winter's frost, which renders it friable and easier worked in the spring. The number of spring ploughings and harrowings will depend on the nature of the soil, which must be thoroughly pulverised and cleansed, every clod broken, and every weed gathered off.—It is then drilled up into ridges of from 26 to 30 inches, according as the land is level and clear of stones or otherwise. Well prepared manure is then put into the drills, and seed sown (at the rate of 3lbs. per acre) as soon after as possible.

It is of great importance that the operations of drilling, manuring, covering the manure, and sowing, should be carried on in as rapid succession as possible. Seed sown on the evening of the day that the manure is applied and covered, will vegetate under the most unfavourable circumstances, whilst, if it is delayed for only twelve hours it will either not vegetate at all or so partially and feebly as to render it useless as a crop. So soon as the young plants show their rows distinctly, the grubber or cultivator should be passed between the rows, and the stripe of surface left between its operation and the line of plants should be taken off by the hand hoe. This gives an effectual check to the first growth of weeds, and renders the subsequent weedings comparatively easy. When the plants have got to some size, and begin to crowd each other, they should be singled out to a distance of from ten to fourteen inches, according as the crop is likely to be, a bulky one or otherwise. Moist weather is the best for this operation, but it should not be delayed more than eight days beyond the proper stage, even though the weather should be unfavourable. While the thinning is going on, the earth should be removed from the roots of the plants left, so that only the taproot shall have a hold of the soil. At least one hand hoeing will be necessary after this, and as much cultivation between the rows as there is leisure for, up to the time that the plants begin to meet their leaves across the drill, when the drill plough may be passed lightly between the rows so as to form a channel for the surface water to run off, but without putting any earth up to the bulbs.

MANGOLD WURTZEL.

The culture of mangold wurtzel is much the same as for turnips, only the seed requires to be sown by the hand, and slightly covered with a rake or shovel. It is chiefly valuable as food for milch cows, as it does not, like turnips, taste the milk. In other respects I think it inferior to turnips, and being easily damaged by frost should not, in my opinion, be grown to any great extent in this Province.

CARROTS.

Land intended for carrots should have the manure ploughed in in the fall, and by as deep a furrow as possible. The seed should be thoroughly separated, mixed up with moist earth and sand, and placed in a rather warm situation, such as a kitchen, and turned over repeatedly for say forty-eight hours before sowing. This will cause the seed to germinate and insure an early braird. The rest of the treatment is similar to that for turnips, only in thinning out the distance between the plants should be from four to six inches.

BREEDS OF CATTLE.

From my experience in the matter, I give a decided preference to Ayrshire cows for the dairy.

I believe they will yield a greater quantity of milk in proportion to the food they consume than any other breed. Besides this, they are docile and hardy, and will thrive on pasture and with a description of keep when such breeds as the Short Horns would starve. They also possess more than average feeding qualities of their own, and when crossed with the Short Horn or Durham Bull, the produce is an animal remarkable for early maturity and a disposition to fatten. If proof were wanting of the excellence of the breed, it would be found in the circumstance that they are carried to almost every quarter of the globe. Large droves are every year taken to England, and during the last ten years, considerable numbers have been shipped to the Cape, the Isle of France, to Sweden, Denmark, Belgium, and the United States.

ROTATION OF CROPS.

The same rotation will not answer equally well on all soils and under all circumstances. The one I consider most generally applicable, and which I have myself adopted, is the following:

First year (and when the ground has been broken up from grass) oats or buck-wheat; second year, drilled green crop, properly cleaned and manured; third year, wheat, barley or other grain, with grass seeds; and fourth, fifth, sixth, and perhaps seventh year, grass made into hay or pastured.

METHOD OF MAKING DUNLOP CHEESE.

When more than the produce of one milking is used, the old milk must be heated to the same temperature as that newly drawn from the cows, or a little above it. This is best done by putting the milk, after taking off the cream, into a tin pan, and that again into boiling water. When the milk is properly heated, it is (together with the cream previously drawn off,) and the new milk, put into a tub and well stirred together, and the steep applied. When the milk has coagulated, which will be in about twenty minutes, the whole should be stirred up and thoroughly broken by the hand. In ten minutes afterwards the whey should be taken off, and

the curd pressed against the bottom of the tub, till it is firm enough to be lifted into a drainer, or vessel with a porous bottom, when it is cut with a knife, once in every ten minutes for an hour. It is then put into a cloth, and a pressure applied to expel the whey more thoroughly. When this is done and the curd gets dry and firm, it is put into a tub and carefully minced with the curd knife, and salt and a little nitre applied. The curd with a cloth round it, is then put into a chesset, set before the fire for three hours, and turned from time to time to preserve a uniform heat. It is then put in the press and a slight pressure applied. At the end of an hour the cheese is turned upside down in the chesset, and a cloth drawn from boiling water applied. At the end of another hour the cloth is again changed, and the cheese is left in the press to the following morning, when it is taken out, slightly heated before the fire, and again returned to the chesset and the press. When the wet cloths have been changed a time or two, a dry cloth is substituted and a greater pressure applied. The dry cloths are changed every two hours till the cheese is perfectly dry, when it is taken out, the chesset well warmed, and a thin cloth put into it. The cheese is then returned to the chesset for the last time and subjected to a slight pressure for half an hour, when it is taken out and laid on a plank in a dry situation with a cloth thrown over it for a day or two, and turned over and rubbed with a coarse towel, (taking care not to break the edges), every two days till it is sufficiently dry for keeping.

The above cannot be called *my* methods exactly, but are the modes considered at present in Ayrshire as the most profitable and advantageous.

If they contribute to make the way more smooth to my brother Farmers in this Province, I shall be gratified.

I am your obedient Servant,

ROBERT GRAY.

DOUBLE FURROW PLOWING.

We saw an experiment in fall plowing not long since, in which there is some virtue, that will meet the approbation of all those who prefer deep plowing and deep soils, to shallow surface work.

It was in a piece of the most inveterate June grass, infested with the wire-worm, and entirely worthless for mowing. The *modus operandi* was this:—With a good turning green-sward plow—its roller set to guage a furrow about four inches in depth—a land was marked out by the plow, and the first furrow slice turned over once out of the way, by hand, with forks. Then another plow of the same width followed, set to work six inches deep in the same furrow, with two strong horses harnessed tandem—one before the other. After the first furrow was completed, the turf slice of the first plow was turned into a ten inch depth of furrow; and, by the second plow, which follows, covered with a furrow of earth six inches thick, taken immediately from under where the turf came from—so that the surface of the original sward was ten inches below its former.

By this process, a species of subsoiling was performed—the ground put in a proper situation for manuring, and cross-plowing for spring crops—the June grass and wireworm probably buried beyond resuscitation—and the earth properly charged with vegetable nutriment to sustain a heavy crop, and resist drouth.

A three-horse team, abreast, would probably be a better team for the second or subsoil furrow; and the whole operation a good spring process, with or without manuring.—*Rural New-Yorker.*

GOOD ADVICE.—"It will not do to hoe a great field for a little crop, or mow 20 acres for five loads of hay. Enrich the land and it will pay you for it. Better farm 30 acres well than 50 acres by halves."

MANURING TREES.—It does not always happen, says the *Maine Farmer*, that the ground is made as fertile when young trees are set out, as it should be. In such instances, subsequent manuring is useful. No better season for this purpose can be selected than late in the autumn or during the winter, when rains or thaws may carry the soluble portions down among the roots, and the remainder be spaded in, in the spring.

Now every person at all conversant with the laws of vegetable growth, is aware that the absorbing parts of roots, are young fibres or spongioles, at or near the extremities of larger roots. In very small trees, these may be within a foot of the main stem; but as the tree increases in size, the circumference of the roots forms a larger circle each successive year. While the tree is young, the length of the roots is quite equal to the height of the tree. As it becomes older, the roots near the base of the tree enlarge and become nearly destitute of fibres. Hence, the entire uselessness of the too common practice of applying manure closely around the base of the tree, instead of at a distance of many feet around. This practice is not less absurd than to pour water into a man's boots to allay his thirst.

Trees which grow in sod ground can never thrive so well as where the soil is kept mellow and free from vegetable growth. With young trees the difference will often be as ten to one. Many, to avoid this evil, spade around their trees, but in so small a circle, that no benefit is derived; the young roots are far off from the tree and from this spaded circle, seeking in a hard dry soil, under the thick grassy covering, for a scanty supply of food.

PRUNING STONE FRUIT.—It has been but a few years since the cultivators of fruit have been in the habit of pruning peach trees at the extremities of the branches, instead of cutting off limbs at the trunk. This system of shortening in, as it is called, is gaining ground, and is a great improvement. The reasons for this mode of pruning are evident on examination. Most kinds of stone fruit grow rapidly, and bear the greatest part of their fruit on new wood, which is, of course, near the ends of the limbs. In this way a tree spreads over much land, and has naked branches near the trunk; and pruning at the trunk causes the gum to ooze out, which sometimes endangers the health or life of the tree.

On the contrary, by pruning at the ends of the branches, the tree is confined to small space, the wounds have no unfavourable effect, or only affect the twigs and not the trunk, and much new wood is produced for the production of fruit.

TO NEUTRALIZE THE ACID (OR SOURNESS) IN FRUIT PIES AND PUDDINGS.—It is well worthy of notice that a large quantity of the free acid which exists in rhubarb, gooseberries, currants, and other fruits, may be judiciously corrected by the use of a small quantity of carbonate of soda, without, in the least, affecting their flavour, so long as too much soda is not added. To an ordinary sized pie or pudding, as much soda may be added, as, piled up, will cover a shilling; or, even twice such a company, if the fruit is very sour. If this little hint is attended to, many a stomach-ache will be prevented, and a vast quantity of sugar saved; because, when the acid is neutralized by the soda, it will not require so much sugar to render the tart sweet.

PASTRY.—Take a quarter of a peck of flour, and rub into it a pound of butter, very fine. Make it up into a light paste, with cold water, just stiff enough to work well. Lay it now out about as thick as a crown piece; put a layer of butter all over; sprinkle on a little flour, double it up, and roll it out again. Double and roll it with layers of butter, three, four, five times, or more. Bake in a moderately quick oven.

Horticulture.

A FEW WORDS ABOUT SICKLY PEAR TREES.

We have heard several complaints of the early decay of pear trees in Canada. This effect is probably owing as much to the want of drainage and thorough preparation of the soil, and planting too deep, as selecting sorts which have not become acclimatised. It should be remembered that a tree is a living organism, and that it is necessary to pay the strictest attention to the various physical conditions which affect its healthy development, and therefore its durability. The extremes of temperature and excessive droughts incident to the climate of a large portion of the North American continent, are no doubt injurious to the healthful and prolonged maturity of vegetable as of animal life; but much of the premature decay of fruit trees, as well as of human beings, is attributable to the want of rational attention and the ignorance or neglect of nature's laws. The following article we take from the February number of that useful periodical the *Horticulturist:*

I find, on looking about my garden, talking with fruit-growers and looking through the pages of your paper, that it is an undeniable fact that a good deal more difficulty is experienced in cultivating the pear than any other of the popular fruit trees.

The time was, indeed, when pear trees—great, strong lofty trees, too, though the fruit was rather *chokey*—grew around every farm-house, bore cart-loads of fruit annually, and were looked upon as able to "stand more hard knocks" than even an apple tree. Longer-lived the pear tree certainly is by nature; and as standing venerable proofs of this, I refer you to the Endicott pear tree, near Salem, and the Stuyvesant pear tree, in New York. As both of these trees are above two centuries old—by veritable records—it is not worth while to spend time in proving that the pear is, naturally, a long lived tree.

But, in fact, natural pear trees, that is to say, the chance seedlings of the common pear, that spring up by the sides of lanes and fences, are as hardy and as great bearers now as they ever were. What then is the matter with all the sorts whose tenderness our fruit-growers groan over?

Is it not owing to the delicate constitutions which these foreign varieties, bred in a more regular climate, have, and which makes them peculiarly alive to our great excesses of heat and cold?

Is it not true, in rich and deep soils, where delicate trees are forced into a sappy condition, when the limbs are too full of juices, upon which the frost or sun acts readily, that blight and other diseases of the pear are most frequent?

Is it not true that foreign varieties of pear, especially those originated within the last few years, are far more delicate and liable to disease than native sorts of equal merit, raised from seed in this country?

I throw out these queries to set some of your ingenious and practical correspondents, in various parts of the country, at work to furnish materials for answers that will settle some knotty points. For my own part, I have made up my mind that to grow fine pears for profit, we must, in order to save the trees and keep them sound, keep the trunks and leading branches covered with a light *sheathing of straw* all the year round. This guards the bark of the principal parts of the tree from all excesses of heat and cold. I have experimented for four years past with this plan of sheathing, and can say that I am quite satisfied with it. Among three dozen pear trees now just come into bearing, one-third of them have been kept in straw, and not a single one of that dozen has suffered by blight or other disease; while of the remaining two dozen, nearly one-half have dropped off, and been dug up and consigned to the brush heap.—Some careless farmer or gardener—fond of *shirking* everything that he can—will say, "but who can take the trouble to straw all his pear trees?"

You can, is my reply. Try it on half a dozen trees, and keep an account of the time and labor spent in it. It will amount to a few cents per tree,—not the price of half a peck of Virgalieus in the York market. And if you can gather pears by the cartload—for no fruit ripens better, or has a higher flavor than the pear in this climate—if, I say, you can gather pears every year by the cartload, for only the trouble of strawing the trees, then the blight take you if you are too lazy to do it!

AN OLD DIGGER.

ANCIENT HORTICULTURE.

In the middle of the nineteenth century, when, by the aid of science, we are approaching to perfection, it may be curious and interesting to take a retrospective glance, the better to judge of the progress that has been made in fruit culture. The following remarks on the apple, are taken from a book, published in London in 1597, by John Gerarde, and "enlarged and amended" by Thomas Johnston, anno 1633:—

"The tame and grafted apple trees are planted and set in orchards made for that purpose. They delight to grow in good and fertile ground. Kent doth abound with apples of most sorts; but I have seen in pastures and hedge-rows, about the grounds of a worshipful gentleman, dwelling two miles from Hereford, called Master Roger Bodnome, so many trees of all sorts, that the servants drink for the most part no other drink but that which is made of apples. The quantity is such, that by the report of the gentleman himself, the parson hath for tyth many hogsheads of cyder. The hogs are fed with the fallings of them, which are so many that they make choice of those apples they do eat, who will not taste of any but the best—an example doubtless to be followed of gentlemen who have land and living. But enough saith, the poor will break down our hedges, and we shall have the least part of the fruit. But forward in God's name; graft, set, plant and nourish trees in every corner of your grounds. The labour is small, the cost nothing; the commodity is great; yourselves shall have plenty, the poor shall have somewhat in time of want to relieve their necessity, and God shall reward your good minds and diligence."

Then, when so many have "land and living enough," and are destitute of fruit trees, the above advice to the people of England, given upwards of 250 years ago, is worthy of attentive consideration. We would say, the season is now at hand; "graft, set, plant and nourish [fruit] trees," of good descriptions only, "in every corner of your grounds."

L. T. N.

PRUNING.

The proper season to prune fruit trees is in spring, when the cold weather is past—say from the middle of March to the end of April, according to the season. Pruning, regularly and judiciously performed, improves the size and flavour of fruit,

and promotes a vigorous and healthy growth. Experience has shewn the correctness of the following general principles:—

1st. Over pruning produces barrenness, and moderate pruning leads to productiveness.

2nd. It is a well known law that the removal of one bud or branch, strengthens another. The reason of this is, that the sap which formerly supplied an amputated limb, transfers itself to the other branches.

3rd. To stop a branch by cutting away its extremity, induces what is left to produce side branches, which would not otherwise have appeared. By this means we are enabled to give a shapely form and proper balance to the head of the tree.

The application of these principles is easy. The great object to be kept in view, is the necessity of keeping the branches thin; remove such as are straggling, or cross, and come in contact with each other. Abundance of light, and a free circulation of air amongst the leaves, are of vital importance to all plants. When branches and consequently leaves are crowded together, they are smothered. When pruned to grow well apart, they break freely, and perspire profusely; the result is, strong, thrifty shoots, and dark green fat leaves, instead of spindling twigs and yellow weasened foliage

In apple orchards that have been recently planted, very little pruning is necessary. Let the trees be examined yearly about midsummer, and all crossing branches removed, while they are yet small. The heads can then be properly adjusted and balanced, and little trouble required to keep them in order for the future.

In all cases let such limbs and twigs as are necessary to be removed, be cut close to the trunk or branch from which they are taken. This facilitates the healing of the wound, and prevents the unsightly appearance of dead and decaying stumps or spurs. After being pruned in spring, an application of the subjoined wash will prevent the ravages of insects, and greatly promote the thrift of the tree. Cultivating the soil around the trees, and the regular use of manure, are also of essential importance. Every fall, let some good rotten manure be put round the roots, and dug down in spring.

George Leslie.

Toronto Nursery, Feb., 1850.

WASHES FOR THE STEMS AND BRANCHES OF FRUIT TREES.

1. A peck of quick lime, half a pound of flour of sulphur, and a quarter of a pound of lampblack; mix the whole together with as much boiling water as will form the ingredients into a thick paint. Before applying the composition—which will be best done with a paint or whitewash brush—scrape off all the moss and loose bark from the trunk and branches.

2. Dissolve two pounds of potash in two gallons of water. This is applied with a brush once, or at most twice, and is an efficacious preservative against the attacks of insects.

3. For old trunks with thick and rigid barks, a wash of soft soap is very beneficial. A portion of it remains upon the bark, which, dissolved with the rain, penetrates into the crevices, where insects are lodged, and effectually destroys them.

The use of any of these washes will rid the stems and branches of trees of the bark louse, the scale or scab, the white mealy insect, and render the bark soft, smooth and glossy, and add to its natural lively colour.

IMPORTANCE OF ORCHARD PLANTING.

J. Dougall, Rosebank Nursery, Amherstburgh.

(Concluded from Page 42.)

Planting and Cultivation of Orchards.

Orchards should not be planted on ground where water stands at any season of the year. If not intended to be underdrained, open drains should be made so as to carry off all surface water as it falls; after which, the land should be thoroughly ploughed and manured. The best way to do this, is to subsoil plough it first, then trench plough it, to incorporate the manure thoroughly; or, if the whole field cannot be subsoiled, a strip of land, eight feet wide, should be so treated where the rows of trees are to be placed. If the land is sloping, care should be had to run these strips up and down the slope, and not across it, so as to allow the water in the soil free egress. The orchard should also be put on the best soil on the farm, if otherwise suitable, as it will well repay such care.

The trees, if apples, should be planted thirty feet apart each way. Some plant them forty feet apart, but it is a long time before they cover the ground. One of my orchards has the apples and pears planted quincunx, thirty-three feet apart each way, and between every one of these trees, a plum or peach tree is planted, so that in reality, the trees are only twenty feet apart; but before the apples and pears need the ground to themselves, the peaches and plums will have died out. This is a very good plan where you have not ground or room for separate orchards for each kind of fruit; but I would, where practicable, advise planting each kind of fruit by itself, as they require different manures, and standard pears may be planted twenty-five feet apart, as they grow more upright than apples; plums, cherries, and peaches from fifteen to twenty feet apart.

If the trees are planted in the fall, it is well to make a conical mound of earth about fifteen to eighteen inches high, round each tree, this serves to protect the roots from frost, it also prevents the tree from being blown about by the wind when the ground is soft, and thus saves the trouble of staking the trees; it also prevents the depredations of mice in winter.

If planted in spring, the trees should be mulched; that is, long manure, chip manure, or other litter placed round the trees a few inches thick; this protects the roots from the effects of drought in summer, and keeps the ground moist, and prevents it from baking and cracking; and, if it is necessary to water the trees in summer till fairly started, it will prevent the water from quickly evaporating. But, in general, it will be better not to water the trees at all. I have never found watering, unless slightly over the foilage or wood, if the tree is long of growing, do any good during the prevalence of dry weather; but on the contrary, I have found it do great injury. During wet weather, though it may look ridiculous to say so, it is sometimes very beneficial; when sufficient rain has not fallen to penetrate the ground thoroughly, then is the time to give them a good watering, so as to reach to the roots, and then the evaporation will not be so injurious as during the prevalence of long continued drought.

The holes for planting the trees in, should be three or four feet in diameter, and eighteen inches or two feet

deep, unless in underdrained clayey subsoils, as before stated. If the subsoil is bad, it should be thrown out, and rich earth or compost, put in the place, in which the tree should be planted, so as to be not more than an inch deeper after the soil has settled, than it was in the nursery; and as the earth is filled in, the tree should be gently shaken, so as to make the fine earth fill up all the interstices about the roots. When the hole is about two thirds full, the earth should be trod around the roots to firm the tree, and if in spring, a bucket of water should be thrown into the hole, which will cause the earth to settle equally about the roots. The rest of the earth should then be filled in loosely, without further treading; and if the tree is in an exposed situation, or large, it should be staked to keep it from blowing about; if in sheltered situations, and the trees are small, they will not require staking. I have never staked a tree I planted yet, and have found no need of doing so. Where necessary, the stake should be placed slanting, and tied to the tree with a straw rope, or other soft bandage, which should be wound two or three times round the stem of the tree before tying it to the stake, to prevent injury from rubbing.

After the trees are planted, the soil should, for several years at least, be thoroughly cultivated with root crops that require manure, such as potatoes, beets, carrots, turnips, and other vegetables; but care must be taken in planting these crops, not to have any of them within three or four feet of the trees. I have seen a fine young orchard, planted with great care, nearly killed the first year by a foolish greediness in allowing the hills of potatoes to be planted close up to the tree. This space round each tree should always be kept free from all crops, and regularly hoed and dug, for if large weeds are allowed to grow up round the trees, they are as hurtful, or more so, than crops, or grass. When necessary, from any circumstance, to lay the orchard down in grass, a space of from six to eight feet in diameter, according to the size of the tree, should be kept clear of grass and weeds, by digging and hoeing repeatedly.

In no case should grain crops be sown in an orchard, as they are the most injurious that could be put in it.—Indian Corn might be planted, but it must be kept a considerable distance from the trees, and it is not nearly so good as low hoed crops. After the trees commence bearing, it would be found far more profitable to cultivate the ground regularly without planting any crops; the increased product, both in quantity and quality, would well pay for the labour, and I cannot see why it should be considered that the crop of fruit is the only one on the farm that will not pay for separate cultivation.—*Montreal Witness.*

ROOT GRAFTING.

This method of propagation is admirably adapted to hardy, thrifty varieties of apples, pears and plums, and as such is perhaps the most popular in the Horticultural world. *Tender or unthrifty sorts, however, should never be so worked at the West*—such varieties in our climate need all the additional vigour and hardihood, to be gained by an exchange of their own stocks and roots for those of seedlings. In grafting wild plums upon wild plum stocks, the graft should always be below ground a few inches, so that it may throw out roots of its own. If set low at first, but not low enough, the tree should be taken up and set deeper afterwards. If this is not done, the tree, we think, will be comparatively tender or shortened. But it is, with the apple tree more particularly, that root-grafting obtains and shines forth in all its glory. That variety alone, so far as we know, is so worked in the winter season and kept in boxes till spring, at the usual grafting season.

We subjoin the usual practice in root-grafting, as given in an article written by us three years since for the Horticulturist, with, however, some few alterations. When ready to commence operations, take a lot of roots, as many as are wanted during the day, and cut them up in pieces three or four inches long—never longer—marking the upper end of the roots when necessary, in order to distinguish them, and throw the pieces into a pail of water. If desirable to cut close, the upper piece need not have more than an inch of clear root upon it. In regard to size, they may vary from that of the scion, to an inch or more in diameter—but the best size, perhaps, is about three-eighths or half an inch thick. When the roots are cut they should be washed by stirring and turning them a few times in the pail, and changing the water once, leaving them when washed in the water.

After marking the name of the variety to be grafted, upon a little stake eight or nine inches long which should be kept constantly with that variety, and in boxing put between it and the next kind—two or three hundred grafts are prepared ready for setting and piled up. They should be from three and a half to four inches in length, and with a tongue, as in splice grafting—the cut or slant at the grafted end of both the scion and root, not exceeding about half an inch in length. After taking out a quantity of roots, and piling them up with the lower ends towards you, they are then, one by one, prepared with a tongue and the grafts inserted.

They should now be waxed, or tied, ready for packing away in the boxes. If waxed, they must be previously spread out so that the outside moisture can dry off. The wax is made by melting and stirring together four parts rosin, one and a half beeswax, and one of tallow—to be applied while in a fluid state, with a shaving brush, which is neatly and quickly done. If preferred, they may be tied with tow or bass strings, or corn husks.—This we think quite as good a way as any, though perhaps not so speedy as the other. They are now ready for the boxes, which should be about twenty-four inches long, twelve wide, and five and a half high on the inside, and need not be very tight. Such a box will hold from 600 to 1,000 roots, according to their size and the closeness of packing. Fill the box partly full of fine earth, and pack some snugly against one end; then take a handful of the root-grafts, and after evening the tops, set them up slanting against the earth, beginning at the right hand side of the box, having the tops an inch or two above it. In order to get the tops even, and keep the tiers separate across the box, a thin, narrow strip of board is placed behind each tier. Ater placing a row, the dirt should be worked among the roots and packed snugly against them, using a little punch to jam down the dirt behind, each tier and next the box. There need be no fear of disjoining the grafts in boxing, unless handled very roughly. When the box is full it should be set away in a cool, dark, moist cellar, or place where they will not freeze, nor the mice get at them.

They should be planted out as early as the ground will admit, though we have planted them as late as the middle of May, but not with so good success. The best stage, we think, for planting them out is when the buds have burst, and the young shoots have fairly started—but have set them when they had grown several inches. A week or two before putting out they should be exposed to the light and air, and well watered. Should the cellar where they are kept be very dry, they might require watering in the winter.

In planting out rub off all the shoots from the roots, and set in good, mellow soil, with the top of the scion an inch or so above the ground.

Root-grafting, as above, can be done at any time during the winter. The regular day's work is 500, which, however, under favourable circumstances, is an easy task. In case the roots or scions cut during the day, be not all used the same day, they can be kept over night in the water.—*Wisconsin Farmer.*

General Science and Miscellany.

NATURAL PHILOSOPHY.

No. III.

THE LAWS OF MOTION AND THE CENTRE OF GRAVITY.

The science of mechanics is founded on the laws of motion; it will therefore be necessary to explain these laws before we examine the mechanical powers. Motion consists in a change of place. A body is in motion whenever it is changing its situation with regard to a fixed point. Now, as one of the general properties of bodies is inertia, it follows that a body cannot *move* without being *put* in motion. The power which puts a body into motion is called *force;* the stroke of the hammer is the force which drives the nail; the exertion of the horse in pulling, that which draws the carriage. Gravitation is the force which occasions the fall of bodies; cohesion, that which binds the particles of bodies together; and heat, a force which drives them asunder. When a body is acted on by a single force, the motion is always in a straight line, and in the direction in which it received the impulse.

The rate at which a body moves, is called its *velocity;* and it is one of the laws of motion, that the velocity of the moving body is proportional to the force by which it is put in motion. The velocity of a body is called *absolute,* if we consider its motions without any regard to that of other bodies. When, for instance, a horse goes fifty miles in ten hours, his velocity is five miles an hour. It is termed *relative,* when compared with that of another body which is itself in motion. Thus a man asleep in a ship under sail, remains at rest relatively to the vessel, though he partakes of its absolute motion. If two carriages go along the same road, their relative velocity will be the difference of their absolute velocities.

The motion of a body is said to be *uniform,* when it passes over equal spaces in equal times. It is produced by a force having acted on a body once, and having ceased to act, such as the stroke of a bat on a cricket-ball. It may be said, that the motion of the ball is neither uniform nor in a straight line. In answer to this objection, you must observe that the ball is inert, having no more power to stop than to put itself in motion; if it fall, therefore, it must be stopped by some force superior to that by which it was projected; and this force is gravity, which counteracts and finally overcomes that of projection. If neither gravity nor any other force opposed its motion, the cricket-ball, or even a stone thrown by the hand, would continue to proceed onwards in a right line and with a uniform velocity. We have no example of perpetual motion on the surface of the earth; because gravity, the resistance of the air or friction, ultimately destroys all motion. When we study the celestial bodies, we find that nature abounds with examples of perpetual motion, and that it conduces as much to the harmony of the system of the universe, as the prevalence of it would be destructive of all stability on the surface of the globe.

Retarded motion is produced by some force acting on a body in a direction opposed to that which first put it in motion, and thus gradually diminishing its velocity.

Accelerated motion is produced, when the force which puts a body in motion continues to act upon it during its motion, so that its velocity is continually increased. Let us suppose, that the instant a stone is let fall from a high tower, the force of gravity were annihilated: the stone would nevertheless descend; for a body, having once received an impulse, will not stop, but move on with a uniform velocity. If, then, the force of gravity be not destroyed after having given the first impulse to the stone, but continue to act upon it during the whole of its descent, it is easy to understand that its motion will be thereby accelerated. It has been ascertained, both by experiment and calculations, that bodies descending from a height by the force of gravity, fall about sixteen feet in the first second of time, three times that distance in the next, five times in the third second, seven times in the fourth, and so on, regularly increasing according to the number of seconds during which the body has been falling. Thus the height of a building or the depth of a well may be known, by observing the length of time which a stone takes in falling from the top to the bottom. If a stone be thrown upwards, it takes the same length of time ascending, that it does descending. In the first case, the velocity is diminished by the force of gravity; in the second it is accelerated by it.

The *momentum* of bodies is the force or power with which one body would strike another. The momentum of a body is measured by the product of its weight and velocity. The quicker a body moves, the greater will be the force with which it will strike against another body; and we know also, that the heavier a body is, the greater is its force; therefore, the whole power or momentum of a body is composed of these two properties. It is found by experiment, that if the weight of a body be represented by the number 3, and its velocity also by 3, its momentum will be 9.

The *reaction* of bodies is the next law of motion to be explained. When a body in motion strikes another body, it meets with resistance; the resistance of the body at rest will be equal to the blow struck by the body in motion; or, in philosophical language, action and reaction will be equal and in opposite directions. Birds, in flying, strike the air with their wings, and it is the reaction of the air which enables them to rise or advance forwards.

If we throw a ball against a wall, it rebounds; this return of the ball is owing to the reaction of the wall against which it struck, and is called *reflected motion.*

Compound motion is that produced by the action of two forces. If a body be struck by two equal forces, in opposite directions, it will not move. But if the forces, instead of acting on the body in opposition, strike it in two directions inclined to each other, at an angle of 90 degrees, it will move in the diagonal of a square: thus, [Fig. 1,] if the ball A be struck by equal forces at x and y, the force x would send it towards B, and the force y towards C; and since these forces are equal, the body cannot obey one impulse rather than the other, yet as they are not in direct opposition, they cannot entirely destroy the effect of each other; the body will therefore move, but, following the direction of neither, it will move in a line between them, and reach D in the same space of time that the force x would have sent it to B, and the force y would have sent it to C. Now, if two lines be drawn from D to join B and C, a square will be produced, and the oblique line e, which the body describes, is the diagonal of a square. Supposing the two forces to be unequal--that x, for instance, is twice as great as y; then x will drive the ball twice as far as y, consequently the line A B will be twice as long as the line A C; the

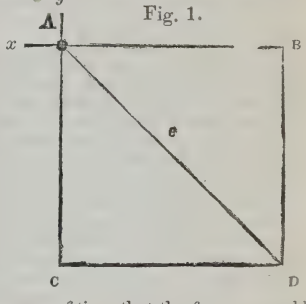


Fig. 1.

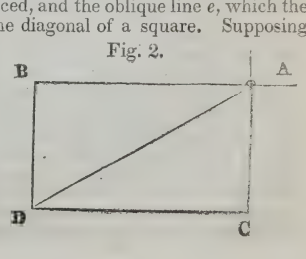
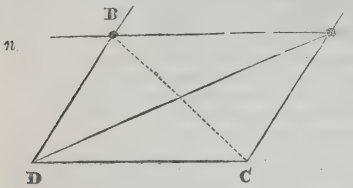


Fig. 2.

body will in this case move to D; and if the lines be drawn from that point to B and C, the ball will move in the diagonal of a rectangle. Let us now suppose the two forces to be unequal, and not to act on the ball in the direction of a right angle, but in that of an acute angle.

Fig. 3.



The ball will move [Fig. 3] from A to D in the diagonal of a parallelogram, A B D C. Forces acting in the direction of lines forming an obtuse angle will also produce motion in the diagonal of a parallelogram. For instance, if the body set out from B instead of A, and be impelled by the forces *m* and *n*, it will move in the dotted diagonal B C.

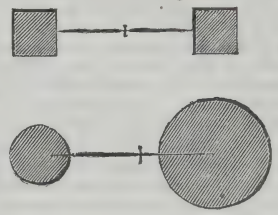
Circular motion is produced by the action of two forces on a body, by one of which it is projected forward in a right line, whilst by the other it is continually directed towards a fixed point. For instance, if I whirl a ball fastened to my hand with a string, it is acted on by two forces, and has a circular motion; one of the forces is that which I give it, which represents the force of projection, the other force is the string which confines it to my hand. If during its motion the string were suddenly to break, the ball would fly off in a straight line, and this, because it would then be acted on by only one force; for, as we have said, motion produced by one force is always in a direct line. The point or line, to which the motion of a body is confined, is called the *centre* or *axis* of motion. This centre or axis remains at rest, whilst all the other parts of the body move round it: when a top is spun, the axis is stationary, whilst every other part is in motion round it. There is one circumstance in circular motion, which must be carefully attended to; which is, that the further any part of a body is from the axis of motion, the greater is the velocity. The force, which confines a body to a centre, round which it moves, is called the *centripetel* force; and the force which impels a body to fly from the centre, is called the *centrifugal* force. In circular motion, these two forces balance each other.

If a ball be thrown in a horizontal direction, it is acted upon by three forces, viz., the force of projection; the resistance of the air through which it passes; and the force of gravity which finally brings it to the ground. Bodies thus projected describe a curve line in their descent. If the forces of projection and of gravity both produced uniform motion, the ball would move in the diagonal of a parallelogram; but the motion produced by the force of projection alone is uniform, that produced by gravity is accelerated; and it is this acceleration which makes it fall in a curve instead of a straight line. The curve line which a ball describes, if the resistance of the air be not taken into consideration, is called in geometry a *parabola*.

The middle point of a body is called its *centre of magnitude*, that is, the centre of its mass or bulk.

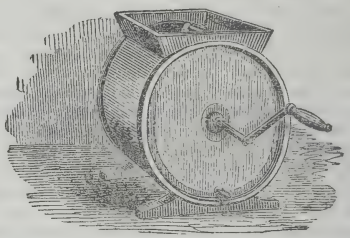
The *centre of gravity* is the point about which all the parts of a body exactly balance each other, in every position of the body; if, therefore, this point is supported, the body will not fall. When a boat is in danger of being upset, it is dangerous for the passengers to rise suddenly: this is owing to their raising the centre of gravity. When a man stands upright, the centre of gravity of his body is supported by the feet. If he lean on one side, he will no longer stand firm. A rope-dancer performs all his feats of agility, by dexterously supporting his centre of gravity; whenever he finds himself in danger of losing his balance, he shifts the heavy pole which holds in his hands, in order to throw the weight towards the side that is deficient; and thus by changing the situation of the centre of gravity, restores his equilibrium. A person carries a single pail of water with great difficulty, owing the centre of gravity being thrown on one side; but two pails, one hanging on each arm, are carried with much greater facility, because they balance each other.

When two bodies are fastened together, they are to considered as forming but one body. If the two bodies be



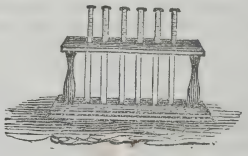
of equal weight, the centre of gravity will be in the middle of the line which unites them; but if one be heavier than the other, the centre of gravity will be proportionably nearer the heavy body than to the light one.

KENDALL'S CHURN.



This is a churn much used in the States, and from its simple, compact, portable shape, we are inclined to think it is both cheaper and better than many of those new fangled contrivances with high sounding names, such as the "Thermometer Churn," "Atmospheric Churn," &c. &c. The cut needs no explanation. The shaft passing through the centre is supplied with perforated wings, which, by turning the handle, give motion to the cream.

THE LACTOMETER.



This is a very useful invention, though but little known. It costs a mere trifle compared with its utility, especially in large dairies. The object of the lactometer is to ascertain the proportion which the cream bears to the milk of any particular cow, or the produce of a whole dairy. Lactometers of different kinds have been invented, the best is called the five or six glass lactometer.

The principle of the instrument is, that if new milk is poured into glass tubes, and allowed to remain, the division between the cream which floats upon the surface of the milk will be so evident, that its depth will be easily measured; and should the milk from any cow produce more cream than that of another, the difference will be

seen by the divisions or marks on the glass tubes. The lactometer consists of five or six glass tubes, about half an inch diameter, and eleven inches long, fitted into an upright mahogany frame, each tube having a fine line drawn round it, ten inches from the bottom; three inches from the line downwards, it is graduated into inches and tenths of inches. At milking time, each tube is to be filled up to the line with new milk. After standing twelve hours, the quantity of cream which floats upon the surface is shewn by the scale of inches and tenths; each division will therefore represent one per cent. of the whole.

If the milk given by a cow at one meal is one gallon or eight pints, and the thickness or depth of the cream which floats upon it measures fourteen divisions, multiply the number of pints, 8, by the depth of the cream, 14; the result will be that the produce of the cream of that meal is 112, or one pint twelve one-hundredths. Care must be taken to fill these tubes as soon as the pail is taken from under the cow, for, if any delay takes place, some of the cream will have ascended towards the top. The milk should be taken from the middle of the pail, which is done by dipping a cream-pot below the froth.

Rich Buckwheat Cakes.—Take two pints of fresh buckwheat flour and half a pint of sifted corn meal, mix with milk to a thin batter, and add one tablespoonful of fine salt, and two tablespoonfuls of brewer's yeast, or an equivalent of other yeast. Leave the whole in a stone jar, in a warm place, to rise over night. In the morning add a little hot water, and then bake immediately.

An uncultivated mind, like neglected ground, will soon be overrun with weeds.

Common Indian Cake.—Sift into a pan a quart of corn meal. Scald it with sufficient quantity of boiling water to make a thick batter, stirring it smooth as you proceed. Add a teaspoonful of salt, and a quarter of a pound, or half a pint of fresh butter. It must be stirred or beaten very long and hard, so as to make it very light. Butter some small square tin pans; fill them with the mixture, and bake the cakes well. Send them to table hot, and eat them with butter and molasses, if you like it.—*Miss Leslie, in Saturday Gaz.*

To Make Yeast.—To two middling-sized boiled potatoes, add a pint of boiling water and two tablespoonfuls of brown sugar. One pint of hot water should be applied to every half pint of the compound. Hot water is better in warm weather. This yeast, being made without flour, will keep longer, and is said to be much better than any previously in use.

Fine Indian Cup Cakes.—Stir to a light cream a pound of fresh butter, cut up into it a pound of powdered white sugar. Add a heaped teaspoonful of powdered nutmeg and cinnamon, mixed. Mix together a pint of sifted Indian meal, and a half pint of wheat flour. Beat six eggs very light, and then stir them into the mixture of butter and sugar in turn, with the meal. Butter some teacups, fill them with the mixture, and bake it well.—When done, turn them out of the cups, and send them to table warm.

Indian Batter Cakes.—Mix together a quart of sifted Indian meal, (the yellow meal is best for all purposes,) and a handful of wheat flour. Warm a quart of milk, and stir into it a small teaspoonful of salt, and two large tablespoonfuls of the best fresh yeast. Beat three eggs very light and stir them gradually into the milk in turn with the meal. Cover it, and set it to rise for three or four hours. When quite light, bake it on a griddle in the manner of buckwheat cakes. Butter them, cut them across, and send them to table hot, with molasses in a sauce boat.

If the batter should chance to become sour before it is baked, stir in about a saltspoonful of pearl-ash dissolved in a little lukewarm water, und let it set half an hour longer before it is baked.—*Miss Leslie.*

Useful Hints.—Account should be kept detailing the expenses and product of each field.

When an implement is no longer wanted for the season, lay it carefully aside, but first let it be well cleaned.

The Wonders of Nature.—There is a tree called the Manchaneel, in the West Indies; its appearance is very attractive, and the wood of it peculiarly beautiful; it bears a kind of apple resembling a golden pippin.—This fruit looks very tempting and smells very fragrant, but to eat of it is instant death, and its sap or juice is so poisonous, that if a few drops of it fall on the skin, it raises blisters, and occasions great pain. The Indians dip their arrows in this juice to poison their enemies when they wound them. Providence has so appointed it, that one of these is never found, but near it grows a white wood, or fig tree, the juice of either of which, if applied in time, is a remedy for the disease produced by the Manchaneel.

Tea.—The definition of this word, two hundred years ago, was: "A kind of drinke used in China, made of hearbes, spices and other comfortable things very costlie; they drinke it warme, and with it welcom their dearest guestes and friendes."

Improvement in Gun Casting.—A new method has been resorted to at the Cannon Foundry, near Pittsburgh, for the production of guns. Instead of bringing them from the mould solid, and afterwards boring them, they are cast with the proper bore; the bore being carefully prepared so as to enclose a circle of cold water, which it receives and discharges in a continuous current, during the process of cooling, the object, probably, being to chill the inner surface more rapidly than the outer, and thereby given to it a greater density and strength. The plan is the suggestion of Liet. Rodman; and two guns---one cast on the old and the other on the new plan, having been subjected to the usual test, the first exploded on the eighty-fourth, and the latter on the two hundred and fifty-fifth round. This shows a great superiority over the common mode of making cannon, and if future experiments substantiate this successful one, Lieutenant Rodman's invention will come into general use.—*Farmer and Mechanic.*

MEASURING DISTANCE BY SOUND.

A bell rung under the water returns a tone as distinct as if rung in the air.

Stop one ear with the finger, and press the other to the end of a long stick or piece of deal wood; and if a watch be held at the other end of the wood, ticking will be heard, whatever be the length of the wood or stick.

Tie a poker on the middle of a strip of flannel two or three feet long, and press your thumbs or fingers into your ears, while you swing the poker against an iron fender, and you will hear a sound like that of a heavy church bell.

These experiments prove that water, wood and flannel are good conductors of sound, for the sound of the

bell, the watch and the fender, pass through the water, and along the deal and flannel to the ear.

It must be observed, that a body in the act of sounding is in a state of vibration, which it communicates to the surrounding air—the undulations of the sound affect the ear, and excite in us the sense of sound. Sound of all kinds, it is ascertained, travels at the rate of fifteen miles in a minute; the softest whisper travels as fast as the most tremendous thunder. The knowledge of this fact has been applied to the measurement of distances.

Suppose a ship in distress fires a gun, the light of which is seen on shore, or by another vessel, twenty seconds before a report is heard, it is known to be at a distance of twenty times 1,142 feet, or little more than four and a half miles.

Again, if we see a vivid flash of lightning and in two seconds hear a tremendous clap of thunder, we know that the thunder cloud is not more than 760 yards from the place where we are, and we should instantly retire from an exposed situation.

Discovery in Tanning.—We are informed by a correspondent from New Oxford, Pa., that Mr. William H. Rosensteel, of that place, has discovered a new and valued improvement in the mode of tanning leather, which has been tried for nine months, and which, it is said, will save "one-fourth of the bark and make the stock weigh at least three pounds more per hide, tanning in one-third of the usual time, and making a better looking article." These are very important improvements, especially as only one-fourth of the customary number of vats are employed, consequently no less than one-half of the usual labor is saved. We are not able to describe the process, but our correspondent is one on whom we place every confidence in what he asserts.—*Scientific American.*

Self-Reliance.—The success of individuals in life, is greatly owing to their early learning to depend upon their own resources. Money, or the expectation of it by inheritance, has ruined more men than the want of it ever did. Teach young men to rely upon their own efforts, to be frugal and industrious, and you have furnished them with a productive capital which no man can ever wrest from them.

RECIPES, &c.

To make Rice Bread.—Take one pound and a half of rice, and boil it gently over a slow fire in three quarts of water about five hours, stirring it, and afterwards beating it up into a smooth paste. Mix this while warm into two gallons, or four pounds of flour, adding at the same time the usual quantity of yeast. Allow the dough to work a certain time near the fire, after which divide it into loaves, and it will be found, when baked, to produce twenty-eight or thirty pounds of excellent white bread.

Adulterations in articles of food are so common, and fraught with such dangerous consequences, that we shall supply the processes by which they may be easily detected. Whenever numerous member of a family, after having partaken of the same kind of food are similarly affected by low pains, nausea, or relaxation, there is grave ground for suspicion that impure food has been taken. In such cases, it is alike a matter of individual protection, and public duty, to investigate the subject, and make any discovery of fraud widely known.

Adulteration of Sugar.—If brown sugar be adulterated with sand, (a very common cheat practised by unprincipled dealers,) it may be detected by taking a glassful of clear water, and dissolving a quantity of the suspected sugar therein. If sand, or any similar substance be present, it will fall to the bottom after standing some time.

To discover whether Bread is Adulterated with Alum.—The bread must be soaked in water, and to the water in which it has been soaked, a little of the solution of muriate of lime must be added; upon which, if any alum be present, the liquid will be pervaded with milkiness; but if the bread be pure the liquid will remain limpid. Rationale: sulphuric acid has a stronger affinity for lime than for the alumina and potass, with which it forms alum: it therefore quits those bodies to form sulphate of lime with the lime of the test, which produces the milkiness.

Another method.—Run into the crumb of a loaf one day old, the blade of a knife considerably heated; and if adulterated with alum it will show its unwholesome adherences on the surface; and it may be further detected by the smell.

To detect the Adulteration of Bread by Plaster of Paris, &c.—Bone-dust or plaster of Paris may be discovered by slicing the soft part of a loaf thin, and soaking it in a large quantity of water in an earthen vessel, placed over a slow fire, three or four hours. Then having poured off the water and the pap, the obnoxious matter will be found at the bottom.

To determine whether Wheat Flour or Bread be Adulterated with Chalk.—1st.—Mix with the flour to be tried a little vitriol; if chalk or whiting be present, an effervescence (caused by the discharge of the carbonic acid of the chalk) will take placed; but if the flour be pure no effervescence is produced. 2nd. Pour boiling water on some slices of bread, and pour into the water a little sulphuric acid; if there be chalk in the bread an effervescence will ensue.

To extinguish a Fire in a Chimney.—So many serious fires have been caused by chimneys catching fire, and not being quickly extinguished, that the following method of doing this should be made generally known. Throw some powdered brimstone on the fire in the grate, or ignite some on the hob, and then put a board or something in the front of the fire-place, to prevent the fumes descending into the room. The vapour of the brimstone ascending the chimney, will then effectually extinguish the soot on fire.

A good Gargle for Sore Throat.—Tincture of myrrh, 2 drachms; common water, 4 ounces; vinegar, half-an-ounce. Mix.

Macassar Oil to make the Hair Grow and Curl.—Olive oil, 1 pound; oil of origanum, 1 drachm; oil of rosemary, $1\frac{1}{4}$ drachm. Mix.

Remedy for a Sprain.—Take of camphorated spirit, common vinegar, spirits of turpentine, of each one ounce.

To prevent the Smoking of a Lamp.—Soak the wick in strong vinegar, and dry it well before you use it; it will then burn both sweet and pleasant, and give much satisfaction for the trifling trouble in preparing it.

Scouring Balls to remove Grease, &c., from Cloth.—Soft soap and Fullers' earth, of each half-a-pound; beat them well together in a mortar, and form into cakes. The spot first moistened with water, is rubbed with a cake, and allowed to dry, when it is well rubbed with a little warm water, and afterwards rinced or rubbed off clean.

Wet Clothes.—Handle a wet hat as lightly as possible. Wipe it as dry as you can with a silk handkerchief; and when nearly dry, use a soft brush. If the fur stick together in any part, damp it lightly with a sponge dipped in beer or vinegar, and then brush it till dry. Put the stick or stretcher into a damp hat, to keep it in proper shape. When a coat gets wet, wipe it down the way of the nap with a sponge or silk handkerchief. Do not put wet boots or shoes near the fire.

How to Make an Unhealthy Bed-room.—If you want to have a thoroughly unhealthy bed-room, these are the precautions you should take:—Fasten a chimney-board against the fire-place so as to prevent foul air from escaping in the night; and, of course, in the night season, never have a door or window open. Use no perforated zinc in panelling; especially avoid it in small bed-rooms. So you will get a room full of bed air. But in the same room there is bad, worse, and worst; your object is to have the worst air possible. Suffocating machines are made by every upholsterer; attach one to your bed; it is an apparatus of poles, rings, and curtains. By drawing your curtains around you before you sleep, you ensure to yourself a condensed body of foul air over your person. This poison vapour-bath you will find to be most efficient when it is made of any thick material. There being transpiration through the skin, it would not be a bad idea to see whether this cannot be in some way hindered. The popular method will do very well; smother the flesh as much as possible in feathers. The feathers retain all heat about your body, and stifle the skin so far effectually, that you awake in the morning pervaded by a sense of langour, which must be very agreeable to a person who has it in his mind to be unhealthy. In order to keep a check upon exhalation about your head (which otherwise might have too much the way of nature), put on a stout, closely-woven night-cap. People who are at the height of cleverness in this respect, sleep with their heads under the bed-clothes.—Take no rest on a hair mattrass; it is elastic and pleasant certainly, but it does not encase the body; and therefore, you run a risk of not awaking languid. Never wash when you go to bed; you are not going to see anybody, and therefore there is no use of washing. In the morning, wet no more skin than you absolutely must,—that is to say, no more than your neighbours will see during the day—the face and hands. So much you may do with a tolerably good will, since it is the other part of the surface of the body, more covered and more impelled in the full discharge of its functions, which has rather the more need of ablution. It is therefore fortunate that you can leave that other part unwashed. Five minutes of sponging and rubbing over the whole body in the morning would tend to invigorate the system, and would send you with a cheerful glow to the day's business or pleasure. Avoid it by all means, if you desire to be unhealthy. Do not forget that although you must unfortunately apply water to your face, you can find warrant in custom to excuse you from annoying it with soap; and for the water again you are at liberty to take vengeance by obtaining compensation damages out of that part of the head which the hair covers. Never wash it; soil it; clog it with oil or lard, either of which will answer your purpose, as either will keep out air as well as water, and promote the growth of a thick morion of scurf. Of course, as you do not cleanse your body daily, so you will not show favour to your feet. Keep up a due distinction between the upper and lower members. When a German prince was told confidently that he had dirty hands, he replied with the liveliness of conscious triumph, "Ah, do you call dat dirty? You should see my toes!" Some people wash them once in every month, that will do very well; or once a-year, it matters little which. In what washing you find yourself unable to omit, use only the finest towels, those which inflict the least friction on the skin. Having made these arrangements for yourself, take care that they are adhered to, so far as may be convenient, throughout your household. Here and there, put numerous sleepers into a single room; this is a good thing for children, when you require to blanch them and render them delicate; but you must take care not to carry this too far, otherwise you will render them pasty, pot-bellied, and deformed. By all means let a baby have foul air, not only by the use of suffocating apparatus, but by causing it to sleep where there are four or five others in a well-closed room. So much is due to the maintenance of our orthodox rate of infant mortality.—*Journal of Public Health.*

Newspapers.—The reading of a good and well-conducted newspaper, even for the short space of one-quarter of a-year, brings more sound instruction, and leaves a deeper impression, than would be acquired, probably, at the best school in twelve months. Talk to the members of a family who read the papers, and compare their information and intelligence with those who do not. The difference is beyond comparison.—*Irish paper.*

Cod Liver Oil.—This species of oil is now a very fashionable remedy, and so great is the call for it, that some have wickedly suggested that there is more cod liver oil in the market than there are pounds of cod's livers caught. The principal disease, for which this is prescribed and taken, is consumption. We have no doubt that in many cases where there are consumptive symptoms, relief has been obtained by the use of this medicine. Probably a free use of any other fish oil would have done the same. The accounts that we have read in narratives of voyages among the Esquimaux Indians, who live on seal oil and blubber—and the fact that the Indians of the Penobscot and Quoddy tribes on our coast, are more healthy and fat during the fishing season, when porpoise oil is plenty, tend to corroborate this opinion.

We have seen some accounts of the use of other kinds of fish oil instead of the cod's liver, when that particular oil could not be conveniently obtained, which stated that equally as good effects followed its use. Some contend that in the cod liver oil may be found *Iodine* and *Bromine*, two very powerful remedial agents. It may be so, but if this be the case, the benefit derived from them must be attributed to Homoeopathic doses, for there is not generally enough of them to act otherwise. One mode of the action of this and other oils is undoubtedly by nourishing the patient. They contain large quantities of carbon, which become transferred or assimilated in the system of the patient, as fat, and thereby improve his appearance. They act also as an aperient, removing liability to a costive state of the bowels, which costive condition is always injurious to health. We would not deter any person from making free use of cod's liver oil, if they wished; but at the same time would advise them not to despair, if this species of oil could not be obtained. Try porpoise oil, or any fish oil—it will nourish you, if it doesn't cure you.—*Maine Farmer.*

Bones and Acid.—To those who dissolve bones in sulphuric acid, I beg to communicate a method I have now, for the second season, adopted with success, whereby I make very short work of an otherwise troublesome job. Under cover, either in a manure barn or cart shed, I make a clay basin or trough, 20 feet by 10, with edges 20 inches wide and as high, into which, having previously thrown 100 bushels of half inch bones, and having damped them, I pour from the carboys 1700 lbs. of acid the contents of each carboy being marked by the maker, I have not the trouble of weighing. As soon as the requisite quantity of acid is poured into the trough, two men with common iron road scrapers or long iron rakes, commence stirring, continuing so to do until effervescence subsides, two hours completing the work. I leave the mass for ten days, when by the addition of sufficient water, I bring the whole to the consistence of a thick gruel, cinder dust being then added as usual.—*Plough, Loom and Anvil.*

Editors' Notices, &c.

THE AGRICULTURIST.—We have received several communications, inquiring about the agency for our paper. We have no agents this year that are recognized as such by us. *Any person* may constitute himself an agent by complying with our published terms. We will send a few extra copies to any one wishing them, as a specimen to show subscribers.

NOVA SCOTIA, NEW BRUNSWICK, &c.—We beg to state to our friends in these provinces who subscribe to our journal, that in making remittances to us, they should either send us bills of the Bank of British North America, or current American money: the former is preferable. We have to submit to so large a discount upon Nova Scotia or New Brunswick money, that we lose all our profits, which at the best are exceedingly small.

WIND WHEEL.—In the Albany *Cultivator* for 1846, a new invention, patented by a Dr. Bridgeman, is described, which is said to surpass all previous windwheels. The *modus operandi* is stated to be that of letting the air into the side of a building by means of movable boards, on the principle of venetian blinds, and causing it to ascend and pass out at the top. In its passage upwards it is made to act on the inner circumference of a horizontal wheel placed in the upper story of the building. Can any of our exchanges tell us what has become of this invention? Has it proved to be of practical utility, or has it failed, like the majority of new inventions? Several persons have lately been making inquiries about this wheel, and if any of our American cotemporaries with whom we exchange can give us any information on the subject, we should be glad to get it, and reciprocate the favour when the opportunity occurs.

PROVINCIAL ASSOCIATION.—The prize list will appear in our next number.

We beg to thank our newspaper cotemporaries for the friendly reception they have given to the *Agriculturist*. We clip the following as a sample of the many flattering notices we have received since the issue of our January number, for the present year.

The Canadian Agriculturist.—We beg the attention of our friends in the country, to the Prospectus of the above periodical, which will be found in our columns to-day. To those who have read the *Agriculturist*, it would be needless to say that it is a most useful publication to the Agriculturist, the Horticulturist, the Mechanic, and likewise to the general reader. To those who have not seen it, we will say merely, that if they feel any interest in the prosperity of the country, they should subscribe for it; and by the way of increasing its circulation in this district, we offer to such persons resident in the country as may become subscribers to the *Argus*, and send us their names during this winter, that we will regularly send to their address, the "Agriculturist" *gratis*.—*Argus.*

The Canadian Agriculturist.—This useful publication, which every farmer in Canada would find it advantageous to read, has lately improved as regards the quantity of matter it contains, no advertisements being allowed, and is published monthly—twenty-four pages in each number—at the low rate of 5s. per annum. The number for January, just received, contains a quantity and variety of information, alone worth the price of the whole year's subscription; and it being the *only agricultural paper printed in Upper Canada*, it deserves far better support than it has hitherto received. The Prospectus for the current volume will be found elsewhere, and any person who takes the trouble to read it will be convinced of the necessity of supporting the publication. There are farmers in Canada who have subscribed to the *Genesee Farmer*, or some other American agricultural paper, for years,—and although they are very valuable, and furnished at a low rate, we can assure them that they will find the Canadian *Agriculturist* equally useful, and furnished at a cheaper rate, considering the difference in the postage paid on American papers.—*Vic. Chronicle.*

The January number of the *Agriculturist* has been received, the Prospectus of the second volume will be found in our advertising columns. No farmer should be without a copy of this useful periodical; besides the valuable information contained in it on agricultural pursuits, it is an excellent family paper.—*L. Times.*

The Canadian Agriculturist.—We are in receipt of the first number of the present volume. It contains twenty-four large and closely printed pages, filled with interesting and useful matter. The *Agriculturist* is a paper deserving the support of every agriculturist in Canada; and one which every farmer, in justice to himself, should be in possession of. The improvements in Agriculture and Horticulture are faithfully noted in this journal. It is in fact the best agricultural paper ever published in Canada, and edited at present by a couple of the most competent gentlemen our province affords. The paper is furnished to single subscribers for one dollar a year, and to clubs at a much lower rate. We will insert the Prospectus in our next.—*Sun.*

The *Canadian Agriculturist* for February fully maintains its high character. The article on the establishment of an Agricultural Professorship in the University of Toronto is peculiarly seasonable: we hope that the University Commission will report favourably on it. Professor Johnston's Address on "the State of Agriculture in Europe," is an important and highly useful document. By employing small type and excluding advertisements, the proprietors of the *Agriculturist* are enabled to furnish a large amount of information at a very low price. We trust they will be well supported.—*Pilot.*

MARKETS, &c.

Since our last the weather has been unusually changeable, with boisterous winds and heavy snow storms.—The wheat plant, we believe, has as yet escaped uninjured. There is every prospect of a very early opening of navigation; we hear that it is in contemplation to commence the running of the Kingston boats about the middle of the month.

The Toronto market for wheat and flour has suffered a depression by the news of the last Steamer—the *America*—from Liverpool, February 9. The British grain market continued very much depressed, and as navigation was about opening in several European ports, large supplies were again expected. Any improvement in rates appears, for some time at least, hopeless. The delivery of wheat in this city of late has been considerable; the back roads having been, and still are, good. The following we give as quotations:

Flour 18s. a 20s.; wheat 3s. 9d. to 4s. 3d.; bushel 60lbs; rye 2s., bushel 60lbs; barley 1s. 9d. to 2s., bushel 60lbs; oats 1s. 3d. a 1s. 4d., bushel 48lbs; pease 1s. 6d. to 2s., bushel 60lbs; potatoes 1s. 6d. a 1s. 9d. per bushel; hay 45s. a 50s. per ton; straw 25s. to 30s. per ton; fire wood 10s. a 12s. 6d. per cord; butter, in tubs, 5d. to 6d. per lb—fresh 7½d. to 11d. per lb; cheese 4d. a 6d. per lb; eggs 9d. to 10d. per dozen; fowls 1s. a 1s. 6d. each; beef 18s. a 26s. per 100lbs; pork, 20s. a 23s. per 100lbs.—*March 7th.*

ROWSELL AND THOMPSON, PRINTERS, TORONTO.

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, WILLIAM McDOUGALL, } EDITOR AND ASSISTANT EDITOR.

VOL. II. TORONTO, APRIL, 1850. No. 4.

The Canadian Agriculturist,

Published Monthly, at Toronto, C. W.

TERMS.

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A FEW PRACTICAL REMARKS ON THE AGRICULTURAL OPERATIONS OF SPRING.

The busy and joyous season of Spring, with its increasing warmth and bright sunshine, giving a renovating impulse to the quiescent powers of the Vegetable Kingdom, and imparting new vigor to a countless number of animate existences, has again arrived; and largely does it draw upon the resources, both of the head and hands, of the cultivators of the soil. Spring may be regarded as the infancy of the agricultural year; and the golden fruits of Autumn will be materially influenced, both in regard to quantity and quality, by the degree of intelligence and industry which the farmer brings to bear upon his important occupation at the present time. All that we propose in the present article is to drop a few practical and seasonable hints.

The winter that has now drawn to a close has been distinguished in Upper Canada, by the general absence of severity, clouded skies, frequent and sudden changes of temperature and a damp atmosphere: characteristics strongly reminding one of "Old Country" winters. Live Stock of every description has done well, when proper attention has been paid; a condition we are sorry to observe is too frequently neglected. In this part of the Province the hay crop of last year was abundant, but in several of the Eastern districts it was extremely scanty, owing to the excessive drought that prevailed over a very large area of the British Provinces and the Eastern States. The farmers in those sections must therefore experience great difficulty in keeping up the condition of their live stock,—particularly as root crops must have been similarly affected with that of hay.

Now the only way of modifying the effects arising from the extremes which are frequently

experienced in the seasons in this climate, is by *steadily pursuing a system of thorough and liberal cultivation.* Root crops, as turnips, mangel wurzel, carrots and parsnips, may be said with the strictest truth to be the farmer's sheet anchor. In Spring particularly, when the temperature increases and the ordinary food of cattle usually runs short, what an advantage it is to have a supply of succulent roots. How invaluable are such kinds of food for milch cows and breeding stock of every description; premising of course that they are given judiciously, with a proper admixture of hay and straw.—Carrots are excellent for horses, particularly in spring, tending to purify the blood, and promoting a generally healthy state of the animal; and the same observation holds good as respects roots for young stock of every kind.

It is of the last importance that the soil be thoroughly prepared for the reception of the seed. Much of the failure of all kinds of crops during the dry, hot weather which characterises the summers of this climate might be obviated, by deep cultivation and judicious manuring. It is a well ascertained fact that during the drought of summer, the most deeply cultivated soils are (other circumstances being equal) precisely those which sustain the healthiest vegetation; the moisture in the earth having an opportunity of ascending within the reach of the roots of plants by the force of what is called capillary attraction. The first object, therefore, with the farmer in Spring is to obtain a deep and fine seed bed. Land ploughed in the fall —a practice generally to be recommended—will frequently require ploughing again in the Spring, as the particles of heavy soils are apt to adhere and consolidate by the action of heavy rains. A powerful Cultivator, when ground has been ploughed in the fall, might be used with advantage in Spring, and save a second ploughing.

Those who pay proper attention to the drainage of their land, either by furrowing, ditching or under-ground draining will experience the benefit of that important and necessary practice by having the soil both drier and warmer, and more readily brought into a fit state for early sowing. The advantage will also be obvious in the final result, in crops of greater quantity and of superior quality. We are not the advocates in all circumstances of *early* sowing; the state of the soil, and its elevation above the level of our great lakes must be considered, or the severe Spring frosts incident to the higher elevations will be sure to destroy the tender vegetation.—As a general rule we should seek to improve the natural climate of the country by clearing, draining and superior cultivation; under these circumstances early sowing may be resorted to with safety and profit, and the growing season prolonged, which in this climate, especially in the case of cereals, is a matter of very great importance. Between the periods of sowing and reaping the interval is frequently too short to admit the full maturity of a plump and heavy grain.

The farmer cannot be too careful in selecting the seed of the various crops he cultivates. This common sense precaution, however, is most lamentably neglected; and to this circumstance alone may be fairly attributed a large share of the scantiness and inferiority of many of our crops. We say to our readers then, sow no other but clean, well grown and thoroughly ripened seed; such seed may give you some trouble to obtain, and will cost a little more than inferior seed with a mixture of weeds, but you may depend that it will be extra care and expense well bestowed and incurred.

We may just advert in conclusion to the importance of sufficiently covering all kinds of small seeds with fine earth. Although there are no doubt large quantities of worthless seeds palmed upon the public either by dishonest or careless dealers, yet we feel bound in candor to say that the fault of failure does not always lie with the dealer, but that it is frequently committed by the farmer himself. All small seeds, particularly such as turnips, clover, &c., require both a fine tilth and sufficient covering, in order that they may vegetate. But how frequently does the farmer neglect these conditions, and then unreasonably, and often unjustly, blames the seedsman for selling him old and worthless seed! We strongly recommend our readers never to sow the smaller kinds of seeds without first testing their vitality, which is easily done by putting a small quantity in some moistened earth and exposing it to a warm temperature. Being satisfied that the seed is good, you have only to comply with those necessary conditions, which nature has imposed as essential to vegetation and healthy developement. Warmth, moisture, exclusion from light, but not from air, are those prineipal conditions. Of all modes of depositing the seed of most of our grain crops, drilling appears to be the safest and the best; and as our farms get cleared of stumps and stones, the use of the drill will no doubt become better understood and appreciated.

A concluding word or two in reference to Clover, a plant of the greatest value as food for Stock, and for renovating the soil. That farmer, who instead of exhausting his land by a constant repetition of grain crops, seeds down alternately

with clover and other grasses, and applies economically the manure which is made upon his farm, will never have to complain, as thousands now do, of a constantly diminishing scale of produce. But in order to have the full benefit of this useful plant *a larger quantity of seed* must be sown than as usually practised. The great object, with the clover plant in particular, should be to cover the ground entirely, thereby preventing the powerful action of the sun's rays on bare surfaces between the plants during tha drought of spring and summer. The use of a heavy roller is recommended, and the application of manure, (plaster in most soils produces a powerful effect,) will generally be found successful in producing abundance both for hay and pasturage.

We earnestly entreat the attention of our readers, and of members of the legislature and the press in particular, to the subject matter of the following communication. As we have repeatedly expressed our opinions in this journal on the questions of Agricultural Education and the means of improving the farming practices of the country, we shall leave Mr Fergusson's letter to speak for itself. We fully concur with the views of the writer as to the great capabilities of this country, and the advantages which it offers to honest and persevering industry. We feel quite confident that if the plans proposed were judiciously and faithfully carried out, the Agriculture and other resources of the country would soon exhibit a marked improvement;—capital and a more desirable kind of emigration would be attracted to our shores; a spirit of enterprise and self-reliance would be more generally called forth, and we should thus become prepared for taking and sustaining as a people our proper position—which would be far from the lowest in the scale—in the general competition of the world. The time for earnest action has now arrived, and we trust that the subjoined appeal to the intelligence and patriotism of the country, from one whose experience and social position alike entitle his views to a respectful consideration, will be the means of directing the public mind to the best practicable methods of elevating the position of our farmers, and of advancing the oldest and most important of all arts,—the cultivation of the soil.

AGRICULTURAL EDUCATION.

To the Editor of the Canadian Agriculturist.

DEAR SIR—

I make no apology for soliciting a corner of your Journal for this communication, aware as I am that the subject has long engaged your attention, and however inadequate my attempt may be, when compared with the importance of the subject, it may serve perhaps to attract the attention of your readers.

The establishment of Agricultural Colleges and Schools has prevailed for many years both in Europe and in the United States, as you are well aware, with a varied measure of success. Such Institutions however, have so often proved failures, that I candidly avow, in times past a considerable portion of hesitation on my part in recommending their adoption in Canada. Of late, it has become known to me that opinions much at variance with my own, are entertained by various individuals, for whose judgment I feel the highest respect, and I therefore most willingly sacrifice my doubts to their more cheering anticipations. I think there can be no doubt upon this, that if an enlightened system of education, shall fall to the lot of the Agricultural class, in any part of the world, no men are either more likely to profit by and to appreciate the blessing than Canadian Yeoman, or are better entitled to enjoy every possible means, of qualifying them to fill respectably, the position which they are destined to occupy in this land. It may perhaps be said that it comes too late for the present generation; be it so; but sure I am, that the present generation, will for that very reason, estimate more highly the boon for their children. The independence and happiness of rural life, (as it may readily be found, if *honestly sought for*) by all who adopt it, in this noble Province, has been an assertion often enough sneered at, or denied; but I am free to declare, that after years of experience and enquiry, my conviction remains unaltered and undiminished, that in no portion of this world, has a kind Providence offered more substantial materials of rational enjoyment, than in cultivating and improving the forest reclaimed fields of Canada. That numbers undoubtedly have failed to realize such views, detracts little from their soundness and truth; for who that has given but a slight portion of attention to human nature, can remain blind to the wanton abuse of God's choicest gifts to His thankless creatures. I shall not, however, indulge in diffuse encomiums upon the lot of Canadian farmers, let it suffice to press upon them the remembrance, that whether they may use it or abuse it, a most abundant portion of human happiness, has been placed within their reach. Let them be sober, industrious, and above all, religious, and they may rest assured, that the cares of life will lie comparatively light upon their homes.

But now, alas, comes a doleful whine. Canadian farmers are ruined and undone. Protection is at an end. This is neither time nor place for discussing the merits or demerits of Free Trade or of Free Navigation. Nor would much be gained by such discussions. Whether palatable or the reverse, we may rest tolerably assured, that these, have become *fixed points*, and there is little doubt that each revolving year will more and more develope their wisdom and advantage.

As regards the Farmer, there can be no reasonable cause of alarm. Besides many indirect advantages, he will positively become a richer and more independent man in the receipt of one-half, or two-thirds of the price, which he used to reckon upon receiving for his wheat, *provided* we can put him in the way of doubling his produce per acre without any hazardous outlay, or extravagant expenditure.

A well regulated, intellectual Agricultural Education will go far in effecting this, and the present product of wheat in Canada, considerable as it is, will prove a mere trifle, compared with the capabilities of her climate and soil.

Next comes the grave question, how are such advantages to be secured, granting their acquisition to be desirable? Fortunately Canada enjoys peculiar facilities for their attainment.—In the great Provincial University about to open, a Chair of Agriculture will assuredly form a part, and will probably be more or less blended with the kindred studies of Botany, Agricultural Chemistry, Natural History, Mathematics, &c. It is believed that a convenient area of ground may be easily attached for illustrative and experimental purposes, and would prove a valuable accessory in education. A Library and Museum devoted to Agricultural and kindred objects would soon lend their aid, and a Veterinary School, framed upon the admirable model of that founded by the Highland Society of Scotland, some of whose Licentiates are already established amongst us, would soon diffuse intelligent and educated men of their profession throughout our land.

Neither is this all. Government possesses a portion of excellent land, almost within the city of Kingston, forming part of that lot, upon which stands the Provincial Penitentiary. This land, with a splendid perennial spring, is at present lying utterly neglected and unproductive. It would not be difficult to engraft upon this, one of those Agricultural Schools, where the sons of farmers or others, might acquire practical instruction in the most approved system of husbandry, while at the same time the ordinary branches of education would be duly attended to and a sound foundation would be laid, if parties should so incline, for prosecuting their studies in the Provincial University. It is not to be overlooked either, in such an Institution that the personal labor of the pupils would very materially diminish the expense of board and education. A ready market for produce would be always found in supplying the Penitentiary, from whence also a copious supply of valuable manure would be readily obtained.

Something, however, seems still required to put this machinery in motion. I would suggest that a Board of a few practical men, should be established in Toronto, acting of course, gratuitously. To this Board I would give sufficient powers to organize and arrange all needful measures, connected with Agricultural improvement and advancement. It is impossible for a moment to doubt the hearty approbation and patronage of the noble Representative of our Gracious Queen, when we remember the steady friendship which that individual has shown for the farmer's welfare, since he assumed the Government of Canada. Lord Elgin knows the farmers' value, and he will never overlook their interests. It would be premature to enter upon the varied duties of such a Board, and it is more than time for me to apologize for so lengthy a communication. There can be no doubt that the Board, if properly constructed is calculated to do great good. One palpable and most valuable result would be the annual collection and publication of the Agricultural Statistics of Canada, in an authentic and extended form. I will only add, that if the suggestion should be favorably entertained, the less time that is lost, the better.

I remain, dear Sir,
Yours truly,
ADAM FERGUSSON.

THE APHIS FAMILY.

The insects comprised within this group are two well known to need any minute description. We observed last summer in one of the best laid out gardens that we have seen in Canada, some beautiful Rose bushes whose leaves were literally destroyed by these insects. In England they sometimes prove destructive to whole plantations of Hops, by absorbing the vegetable juices, and covering the leaves with their sweet and shining excrements, known as honey-dew.—Beans are liable to their attacks—the "black-fly," as it is called,—and the blight in Apples is occasioned by them.

Their mode of reproduction is very peculiar, and deserving of special consideration. In the

autumn they are *oviparous*, and deposit their eggs, otherwise their race would be destroyed by the severity of winter. The genial warmth of spring developes their eggs, and what is very curious, the next generation of insects become *viviparous*, and during summer bring forth their young alive. Their powers of reproduction are inconceivably great. Reaumer, the celebrated French naturalist, paid very minute attention to their economy, and observed one insect, in a single day, become the parent of twenty; and these again would give existence to fresh swarms in a few days. Another French naturalist isolated the female insects as soon as they were born, and yet he obtained nine generations of perfect insects, without contact with the male, the latter not being produced until autumn.

The amazing fecundity of these insects would be absolutely destructive to a large class of plants, had not nature in her wise arrangements appointed numerous enemies to operate as checks. The little shining insect, known to children as the "lady-bird," is among the most powerful of them, and should, therefore, never be destroyed. Lady-birds will devour Aphides by millions. In gardens infested by these unwelcome guests, cleansing the plants with tobacco water will have a good effect; but attacks on a large scale in the field, no remedy of this sort is practicable, and nature must be left to work her own cure.

Spirit of the Agricultural Press.

AGRICULTURE IN NEW BRUNSWICK.

By the courtesy of James Caie, Esq., Secretary of the Northumberland Agricultural Society, New Brunswick, we have been favored with the Report of that Association for 1849-50. It is an interesting document, showing that the Agricultural capabilities of the Province are much greater than is generally imagined. The following extract contains truths of universal interest and application.

"Before resigning those offices of trust to which your partiality promoted them, the retiring Board of Directors would be allowed to congratulate this Society, and the country at large, upon the abundant Harvest with which it has pleased a kind Providence to reward the labors of the husbandman. Sure, such manifestations of the loving kindness of the Creator, while they call forth the gratitude of the creature, should never fail to stimulate him to greater diligence in all time to come,—diligence not merely of a *physical*, but of a *mental* character. It is not enough that, encouraged by last year's success, we increase our efforts this year, in the way of *ploughing, harrowing,* and *stumping* our lands, —something more than this is necessary, if we wish to prosper as Farmers. We must endeavor to keep pace with the march of improvement going on in the world around us, for to loiter behind is to let slip our chance of success. We must therefore increase our *mental efforts*, that we may acquire, among other things at least, a *rudimental* knowledge of those Sciences *without whose aid* our *success as Farmers* is *more the effect of good luck than of good management.* To assert that this statement is not true, or, in other words, to assert that a man understands his business as a farmer, who is ignorant of the substances that constitute his soil, and of those with which he would enrich it, is neither more nor less than to assert that an individual unacquainted with the art of mixing colors, yet *dubbing* himself a *painter*, would be capable of producing as striking a likeness of us, as a Raphael or a Lawrence; or that a man ignorant of the science of *Chemistry*, and the art of compounding medicines, yet styling himself a Physician, would be as likely to remove a malady, or cure a disease, as a Sir Astley Cooper or Sir Benjamin Brodie.

"Nor is this all. Farmers should be diligent in the *acquisition of experimental knowledge.*— All the practical and useful arts are founded upon *facts:* Agriculture is pre-eminently so. All true science, in Agriculture, is the *process of induction;* that is, it consists of inferences drawn from well authenticated facts. Theories in this case, however plausible, are of no real value, unless the application of them lead to some practical rule or result. Now, it may not require a large farm, or a great capital, or a vast amount of intellect, to make experiments, from which the greatest benefits may flow; many questions still involved in uncertainty, relating to crops, seeds, manures, modes of planting and cultivation; of harvesting, saving manure, &c., &c., are just as likely to be solved, in a farm of *ten acres*, as in one of a hundred. What indeed, is every operation of the intelligent Farmer, but an experiment? In preparing, manuring, and sowing his fields, he may be said to be making an experiment; and if such farmers would carefully note every step in the process of cultivation, and the progress of vegetable growth, the facts thus collected, might prove not only beneficial to themselves, and the districts in which they live, but they might elicit truths—*without the aid of Science*—calculated to throw light upon subjects still involved in obscurity."

VALUE OF LAND IN NORTHERN EUROPE.

From Mr. Jacob's official report we glean the

following facts:—In West Prussia, an estate of medium soil, containing 4,200 acres, sold for £3,000 sterling. Another estate with excellent dwelling house and farm buildings, consisting of 2,800 acres of highly fertile land sold for £5,400. These may be taken as an *average* of the highest and lowest value of land in the maratime province of Prussia. Total cost of labor on 2900 acres is put at £155. A hired laborer receives about £5 10s. per annum in money, with a portion of the very coarsest kind of food. Land rents at 1s. per acre. Best Merino sheep worth about 6s. Cows from 30s. to 60s., a few 75s. per head. Wheat is grown chiefly for export, and is conveyed on rafts down the river; these rafts are 75 feet long and 20 broad, rudely put together, and carry from 120 to 180 qrs. The wheat is thrown on mats, and frequently left uncovered for weeks, exposed to the weather. If rain falls it soon causes the wheat to grow, and the vessel assumes the appearance of a floating meadow. The shooting of the fibres soon forms a thick mat, and prevents the rain from penetrating more than an inch or two deep, and the bulk is protected.

In Poland, land and labor is extremely low. Cows of the common breed worth 27s. to 30s. per head. Some of the best breeds will fetch from £3 to £4. Sheep from 3s. to 5s. each. Merinos are rare, worth about 7s. to 9s each. Implements are of the lowest description, the cattle are attached by ropes—no leather used; ploughs ill constructed—with little iron about them; harrows, teeth and all are of wood.

In an elaborate article on the free trade policy in *Blackwood's Magazine* for January, it is stated that good wheat may be bought in these Countries from 16s. to 25s. per quarter, and the cost of transit to England, although variable according to situation and other circumstances, is not upon the average great, from 5s. to 8s. or 9s. per qr. The writer seems to think that the average price of wheat in England must come much below the present. If so it will be impossible to export either from Canada or the States.—Can wheat be grown upon an average in Canada, so as to yield a moderate profit under 4s. currency a bushel? We think not.

THE NEW IRISH COLLEGES.

We learn that Agriculture, both in its theory and practice, will form a prominent feature of these institutions. It is to be hoped that religious bigotry and political hate will not be allowed to interfere with the working of so wise and beneficial a measure. The Lord Lieutenant has signified that £1400 are to be expended in the erection of farm buildings annexed to the Professorship of Agriculture established by Her Majesty in the College at Cork.

PLOUGHING BY STEAM.

The *Banffshire Journal* states that a patent for a steam plough has been taken out by the inventor, Mr. James Usher, of the firm of Usher & Co., of Edinburgh, and the machine will shortly be before the public. The machine is constructed to plough six furrows at once, thus doing the work and saving the expense of six double horse ploughs. The great weight of the machine, which is estimated at three tons, may be thought an objection; but this is in a great degree obviated by the use of a large roller, which is so placed in the centre as to balance the machine, and prevent the wheels sinking.—The cost of the entire apparatus is estimated at £300.

AGRICULTURAL COLLEGE AND FARM IN THE STATE OF NEW YORK.

Through the polite attention of B. P. Johnson, Esq., the indefatigable Secretary of the New York State Agricultural Society, we have been favored with a copy of the Report of the Special Committee of the New York Legislature, on the above subject, and a draft of the Bill which they presented. The Bill provides for the appointment of 17 Trustees for the management of the College, and authorizes the Comptroller to borrow on the credit of the State, the sum of $100,000 for the purchase of the land and erection of buildings, &c. This is the way our neighbors go ahead; how much longer must we talk about it before we *begin* to follow their example? Our readers will find an interesting letter from the Hon. Adam Fergusson in another column relating to this subject.

We extract the following passages from the Committee's Report, and commend them to the notice of our Legislators:—

"The great subject entrusted to the care of the committee, has for several years past excited a deep interest throughout the entire State. Twice the distinguished citizen who now fills the Executive chair, has pressed it upon the consideration of the Legislature; various boards of supervisors, agricultural societies and private citizens have called upon us to act in the premises.—The committee on agriculture in the Assembly of last year, submitted to the House an interesting report upon the subject, which will be found in their documents.—The able board of commissioners last year appointed by the Governor, have matured and reported a plan for an agricultural college and experimental farm, and the same is now upon our files. Public opinion still moves on in the same direction and with accumulated power. It would be but a waste of the time of this committee and wearying to the patience of this House, again to go over the ground embraced in those reports. The most ample justice is therein done to the importance of

the object contemplated, the present state and past history of similar institutions, the branches of knowledge to be taught, and the expense and general outline of the institution.

It seems necessary for this committee now, only to present a few brief considerations, which seem called for by the nature of the bill which they ask leave to introduce.

The committee with entire unanimity assent to the correctness of the conclusions arrived at by the said commissioners, that such an institution as has thus been called for by so wide spread a public opinion, should be established, and that the same should be founded by the State. The necessity for its existence is found in two very important facts, the first is, that two-thirds of the entire population of the State is engaged in agriculture, it is the great occupation of our citizens and the primary source of our wealth, and must so continue through all future time. Whatever adds to the value or the dignity of labor, tends to the elevation in comfort and respectability of the great body of the people. A very slight increase throughout the State of the productions of the earth, will *annually* return to the people more than the entire amount which will be expended on the proposed institution, should that sum even exceed any contemplated bounds.

The second ground for its necessity is found in the most *remarkable fact*, that while a very large majority of the inhabitahts of the Union are engaged in agriculture, while it is everywhere regarded with respect and held in the highest favor, there is not upon the continent a solitary institution where a thorough scientific and practical knowledge of agriculture can be obtained. Millions have been expended in founding institutions to teach law, medicine, theology, and the higher departments of science and literature; and even the blind, the insane, and the deaf and dumb have not been overlooked and forgotten. But that great science which lies at the foundation of all others, and is paramount in importance to them all, has been left to struggle along as best it might, guided by the flickering light of an uncertain experience, and unaided by the fostering care of the government which it sustains.—The results of modern improvements, and the progress made in the present century, in the science of agriculture, demand at the hands of the State the most favorable consideration of this subject, and that this great desideratum should be supplied without further delay. The great farming interests of this State have too long been overlooked and forgotten, or sacrificed to the interests of more artful or more clamorous bodies. But now when their wants are understoood, and their requests are duly presented to our consideration, they are too reasonable to be longer postponed."

STANDARD FOR SAXONY SHEEP.

BY THOMAS REED.

At a meeting of wool growers at the state fair of New York, it was agreed that the judges of Saxony should publish a description of what they considered a complete specimen of Saxony sheep, for the benefit of young wool growers. The other judges desired that I would give a written description to Mr. Peters, the editor of the *Wool Grower*, to which I at length agreed.

Perfection should be the aim of all; and as the Saxony sheep have been brought to the highest state of perfection, as producers of fine wool, it is my desire to make the description so plain that a young wool grower who observes these rules, in buying or selecting for breeding, will soon have a good flock.

First comes the description of a pure blood Saxon buck. He should be of medium size, [and I consider a medium sized buck to be 3 feet 9 inches from the nose to the root of the tail,] around the body 3 feet 2 inches; around the flank 3 feet 6 inches; from the breast to the hip 2 feet 6 inches; in height 2 feet 3 inches; he should be a little longer than a Merino and not quite so heavy built. The back almost straight; broad over the kidneys; body round; the neck starting almost level with the tops of the shoulders, tapering and becoming round towards the head. The head small, and neatly set on; no loose skin on the under part of the neck, or very little; the hoofs short and pointed; well quartered, strong, active, and spirited; his eye bright; pleasant countenance, and tame; the skin smooth and healthy looking. When walking with his side to you he should look finished and gay. He should look and feel woolly, not stiff or hard, but soft. The same rules should be observed in selecting ewes, only they are a size less.

The next comes the description of his wool. Fine wool on his forehead; wool on his crown, fine, short, downy looking wool on his cheeks; the under part of the neck as fine as possible and crimped. The wool on the body to be as even as possible all over, and should be crimped twenty-four to twenty-eight crimps to the inch; the crimps should run plain and evenly across the sample and up to the top resembling crape. It should be soft, fine, thick set or compact on the sheep: it should be so that it will stand straight out, showing small strands or divisions on the surface of the fleece: the belly well covered with fine wool; the hip wool soft and crimped. The wool should be a clear white or cream color; moderately yolkey and the surface of the fleece a little dark. There is a very good kind of wool that is very fine and close, in which you can not trace the crimps—you must decide by the smallness of the fibre. The fleece when shorn, its felting properties should keep it united when spread resembling a spider's web; it should be soft and easy rolled; the length of the wool after it is washed and shorn is from one and a half to two inches.

When a young wool grower goes to select, he should keep the above described sheep or some other model sheep before his mind; it would help him to have precisely one-fourth of an inch marked on his left thumb nail, to lay the sample on and count, and if they count six or seven crimps in that space they are very good. You should cut the samples with scissors for pulling them injures the wool and the sheep both.

When the wool is well crimped it is superb. Sheep that are soaked and washed under a water fall until the wool is pure and clean will average two and a half lbs per head—if washed in the old way they will average three lbs per head. You can have your sheep exquisitely fine, or fine and heavier fleeced just as you select them to breed from. Then why not breed an American sheep equal to any in the world, or one that will suit our notions?

Remember "like begets like." Be careful to guard against the following faults: Coarse, hairy faces; coarse hairs or uncrimped wool on the under part of the neck; stringy on the top of the shoulders; bareness of the belly; coarse hip wool; and coarse hairs on the inside of the thighs; the skin pale or covered with spots; slab-sided, poor on reasonable keeping; sunk in the neck; a little coarse; low on the side.

By observing these rules in selecting and breeding, my wool of 1848 passed for the best American wool at Davis & Aubin's depot, at Boston; my wool of 1849 passed at H. Blanchard's depot, Kinderhook, N. Y.—980 lbs super, 438 prime, all in the two grades. In conclusion, try to have your sheep with as many of the good marks as possible, and very few of the bad ones.

Annually select, fatten and sell faulty sheep to the butcher. By so doing you will have the profit and pleasure of having a fine and beautiful flock. We ought to improve our flocks, raise our fine wool, manufacture our own cloth; for if we pay twenty dollars for foreign cloth, it has to be in specie, and away it goes, and some bank has to draw in sixty dollars of her circulation. The difference is, had we bought American cloth our farmers and mechanics would have had the twenty dollars; and that same money kept among the industrious part of the community, might have paid a thousand dollars of debt in a year, and still have the same money to go on with.—*Wool Grower.*

NUMBERING, CLASSING, AND REGISTERING SHEEP.

VICTOR, February 9th, 1850.

MR. EDITOR:

The following plan for numbering, classing and registering sheep, I have practised for some years past, and I think with some profit. It consists in numbering each individual, so as to designate one from the other, by marks on the ear in the following manner:—A notch or half circle on the fore part of the left ear, means 1; one on the back part of the same, 3; with these I can number up to ten, thus: for number 4, I make one on each side; for 7, two on the back and one on the fore side; a notch on the fore side of the right ear stands for 10; one on the back of the same for 20; with these I can number up to 100. If the flock is large enough so that the lambs of each sex should reach 40 or more, 30 should be substituted for 20. This could be carried much farther, by cutting off the end of one ear for 100, and of the other for 200; two notches might then be made in the end of each doubling each time, from 100, which would make the last stand for 3,200. The age of my sheep is known by holes through the left ear; one through the left ear stands for one that is born in the year of 1841 or '51; one through the right for 3; so that those born in 1846 receive two holes through the right ear; those in 1847, two through the right and one through the left; those born in 1840 or '50, &c., receive no holes. For this purpose I use a half-inch punch, made like those used by shoe makers. In classing or grading my sheep, I am governed principally by the number of curves in a given space, believing with Morrell, in his American Shepherd, that "There is an intimate connexion between the fineness of the wool and the number of curves or otherwise, in proportion to the number of curves in a given span, is the diameter of fibres." Again he says: "The numerous and minute curves being as observed eminently characteristic of the pure Saxon and Merino, will serve as a sure test in all cases, of the purity of blood, and therefore affords a certain and unerring guide in the selection of breeding sheep."

I grade my sheep about the first of February, by clipping a small sample from the body of the sheep, near the centre, without stretching or disturbing the regularity of the curves, then by ascertaining the number of curves in an inch I am able to class as follows:—

1st	class super. extra,	27 to 29	curves to an inch.		
2d	" extra,	25 to 26	"	"	"
3d	" prime,	21 to 24	"	"	"
4th	" No. 1,	19 to 20	"	"	"
5th	" No. 2,	17 to 18	"	"	"
6th	" No. 3,	16	"	"	"
7th	" No. 4,	15	"	"	"

I seldom have any reach as high as the first class or as low as the seventh. A little experience in the business will enable a person to judge very correctly, on opening the fleece, to what class it belongs without the trouble of clipping. In order to ascertain how my manner of grading agrees with yours, I enclose a few samples. The one marked extra was taken from an ewe three years old, her live weight was 63 lbs., her fleece 7 lbs. 3 oz. The one marked prime, an ewe 3 years old, live weight 77 lbs., fleece 5lbs. 2 oz. No. 1 from a buck 4 years old, live weight 108lbs. fleece 8 lbs. No. 2 from an ewe 3 years old, live weight 82 lbs., fleece 4 lbs. 10 oz. No. 3 from an ewe 3 years old, live weight 68, fleece 6 lbs. 8 oz.

The following is the manner in which I keep my books:

BREEDING REGISTER FOR 1849.

No. of ewe.	Year born	Class.	Live wt.	Wt. fleece	Served by bck.	Dateof lamb'g	Lambs bck	Lambs ewe
23	1847	4	58	3 7	1 1845	Ap. 9		1
17	1846	3	64	3 3	1 1848	10	1	
24	1846	5	86	3 12	1 1848	10		2
24	1843	4	94	3 15	1 1845	10	2	

In the first column is the number of the ewe; the next her age or the year in which she was born; in the third the class to which she belongs; in the fourth her weight when shorn; in the fifth the weight of her fleece; in the sixth the buck by which she was served; in the seventh her time of eweing, in the eighth and ninth the numbers of the buck and ewe lambs. I have practised weighing my sheep only for the last three years; it being attended with a good deal of labor, I shall probably discontinue it.

I find the different grades, as a general rule, produce wool about in proportion to their weight, although some individuals produce more than others. My sheep are fed in barns, in the winter season, with a yard and trough of water attached to each, in flocks of about 50, sorted according to age, sex, and condition, the doors being usually left open so they can go out and in at leisure. A short time previous to the lambing season, which commences with me about the 15th of April, my breeding ewes are turned into a field near the barn, where they are allowed to run through the day, being always driven into the yards at night, and if the weather is bad into the barn. As fast as the lambs come they are numbered and put into an other yard or field for a few days, or until they become sufficiently strong, when they are docked and castrated, except such as I save for bucks, and turned away to pasture. The holes through the ear that denote their age are not made until they are six months old.

My present flock, except those I purchased for fattening, consists of about 200, from one to eleven years old, all of which are numbered and classed so that I can at any time ascertain the connexion between any individuals or families, and thereby be enabled to use bucks more or less from my own flock, without danger of too close breeding. I am also enabled to select at all times which I invariably do myself, such as I wish to dispose of, whether with regard to age, quality or quantity of wool. It also enables me by examining their increase to ascertain which are the most valuable for breeding, as it is frequently the case that an ewe, although nearly perfect in herself, will bring forth an indifferent offspring. I can, also, by knowing the amount of wool I have of each grade, more easily ascertain its value.

W. D. DICKINSON.

—[*Wool Grower.*

SUB-SOIL PLOWING.

Much has been said in favor of deep plowing and sub-soiling the earth, the subject has hardly begun to excite that general attention among farmers which it ought to command. There is scarcely one acre in a

thousand on which a deep, mellow, and productive soil can be found, without breaking the *pan*, or compact mass that lies just below the surface of the ground.—So far as the warm atmosphere can freely penetrate, with its oxygen, carbonic acid, ammonia, and vapors, chemical action will be extended, roots will grow and rot, and a fertile soil be gradually developed. The benefits of deep tillage do not all accrue immediately after the operation is executed. The formation of a deep mellow, and rich soil, by the most skilful use of natural elements and agencies, is the work of many years.—To attain this result, one needs not only mineral and organic matter in due proportions in the surface of the earth, but both minerals and mold of particular kind, and in a particular condition of solubility and combination.

After a man has deliberately made up his mind that it is better to own and cultivate good land than poor land, and that there is such a thing as improving the natural fertility of the earth, his first thoughts should be directed to the point, whether any field, or part of a field, needs draining. Stagnant water within three feet of the surface will rise by capillary attraction to a degree fatal to that warmth and friability of the soil, without which its highest productives can never be reached. All under-draining should be into ditches at least three feet deep. But there are millions of acres of tilled land that need no artificial drainage, which will be greatly improved by deep, or sub-soil plowing. The advantages of this mode of culture are the more speedy and decisive, as the manuring, liming, and ashing of the land accompany the breaking up of the inert mass of clay or gravel below the surface soil. It is not pretended that this dead earth will instantly become fertile. Admitting that the comminuted clay really contains salts of lime, potash, soda, magnesia, and soluble silica, it takes time to prepare these fertilizers for the nutrition of cereal plants. Salts of iron and alumina, such as copperas and alum, are apt to exist in excess, and require a little caustic lime to decompose them and form gypsum, or sulphate of lime. Plants that contain considerable nitrogen, such as peas and clover, and of coarse yield a liberal per centage of the alkali called ammonia, when they decay, are exceedingly favorable to the deepening of a thin soil, in connection with deep plowing. Every farmer should understand the difference in the economical value of vegetable mold. Suppose one has 100 lbs. of cabbage, exclusive of water, in one heap, and a like weight of pine saw-dust in another. Which will form 50 lbs. of the better mold? The solid organized matter is alike in each mass; and why should their be any difference in the economical value of 100 lbs. of cabbage or 100 lbs. of saw-dust, either for feeding cows and children, or feeding wheat and corn plants?

In principle, there is no difference in feeding animals, from man down to a coral or sponge, and feeding plants. All living beings need food adapted to their peculiar natural wants. Hence, place a baby oyster in saline water that contains not a particle of lime, and its stony covering must cease to grow. Nature is incapable of creating the first atom of lime, or of any other element consumed to form any plant or animal. A deep, fertile soil, is one that abounds in the raw material for making bread, milk, and meat, in an available form, to the depth of twelve or twenty-four inches, as the case may be. Is there anything unreasonable in saying that such a soil possesses a very great intrinsic value? A cubic foot of such land in the valley of the Genesee contains, on an average, over a pound of common lime, This gives over 43,000 pounds of this mineral to an acre, within twelve inches of the surface of the ground. The writer is credibly informed by one of the best farmers in the State of Delaware, that a million bushels of burnt lime are now annually used for improving the soil in that small State. One farmer pays a $1000 a year for guano.

In the last number of the working farmer we find statements in regard to sub-soiling, from which we extract the following. James Carnaham, President of Princetown College, states the results of an "unintentional" experiment he made in 1848, in sub-soiling.

"I wished," said he, "to sub-soil a lot in soil with a hard pan, and as I had only one team, I hired another to turn over the sod preceding the sub-soil plow. He came and worked one day, but did not return the next. As the time for planting was approaching, I directed my farmer to go on and plow in the common way as deep as he could. He did so. The following day the other plowman returned, worked a day (sub-soiling) and then was absent.

"The result was, the lot was plowed alternately with the common plow and the sub-soil. The whole lot manured and worked in the same way, except the sub-soiling of some parts and some not. The month of August was dry; the corn in the sub-soiled suffered very little; and that on the part not sub-soiled suffered very much.

"When the corn was gathered we could distinguish the very row where the sub-soiling was commenced and ended—*the ears were more numerous and of a larger size.* I did not measure the corn nor the ground, but the difference was so obvious to the sight, that no one could doubt the superiority of the corn on the ground sub-soiled.

"This year the whole of my corn ground was sub-soiled, and the yield was very satisfactory. The month of July was dry and hot, and the leaves of my corn did not shrivel, while those in the adjacent fields rolled up."

Every farmer knows that a deep, friable soil will take up more rain water without detriment to the growing crop, than will a shallow, compact soil. For a similar reason, moisture from below will more readily ascend in dry weather and supply the roots of needy plants with their liquid aliment. But, do not forget that a soil sixteen inches deep requires twice as much mold as one only eight inches in depth. Now, the richest mold is that formed from the carcass of a dead horse or sheep: but as such organic matter is attainable only in homœpathic doses, the farmer should test his skill in producing mold from clover, peas, corn, grass, and other vegetables, to mix with his sub-soil. Beware of the folly of spreading farm labor over too large an area for the highest permanent profit.—Fifty acres of good land are more valuable than 200 of poor land.—*Genesee Farmer.*

HARROWING WHEAT IN SPRING.

In none of the improvements in agriculture do I find farmers so slow to believe as in harrowing wheat after the ground has settled in the spring, Some ten or fifteen years ago much was said on this subject in the Genesee Farmer, showing the results of experiments, and explaining the reasons why it should operate beneficially upon the crop.

Farmers know that a hard crust forms upon ground exposed to the frosts and drying winds of March and April, and that this crust greatly retards vegetation.—But the great objection is, it will pull up all the wheat to harrow it. Having practised harrowing my wheat for the last eight or ten years, and uniformly with good effect, I feel disposed to recommend the practice to my

brother farmers. Of late years I have been in the habit of ploughing in my wheat at the time of seeding with a gang plough, leaving it in the furrow. In the spring after the ground has become dry, the last of April or early in May, I harrow lengthwise of the furrows, then crosswise, loosening up the ground thoroughly. I should like to do this just before a rain. If the land is to be seeded with clover, I sow on the seed and harrow it in. This I think far more safe than sowing early and trusting to the heavings of the frosts and the wash of rains to cover it. Early sown clover is often killed by the droughts so common in April.

I have been amused at the earnestness with which some of my neighbors would remonstrate with me for harrowing my wheat. "Such a fine piece of wheat," say they, "to be spoiled in that manner! He ought to be sent to the mad-house."

And afterwards, when the crop showed for itself it was not ruined, "O, it was such a good piece of land, it will produce a good crop in spite of your experiments," A field of wheat looks bad while under the process of harrowing, as it is prostrated and partly covered with earth; but after a shower it starts up fresh and vigorous, like a field of corn refreshed by a shower after being hoed. I have often examined as to the amount pulled up, and do not believe it will average a bushel upon ten acres. Farmers, try it; and be not frightened by the appearance. I never heard yet of a field injured by it.

MYRON ADAMS.

—*Genesee Farmer.*

CURE FOR THE POTATOE ROT.

Or a method, for protecting Potatoes, after they have been harvested, from the further spreading the Potato disease.

BY A. A. HAYS, M. D.

The rapid decay which continues after the roots have been removed from the soil, is often of a most remarkable character, and aside from its economical bearing, is a subject of scientific importance. During the last season, I made trial of some chemical agents, which specifically arrest all vegetation, hoping to discover an application which would enable us to preserve the diseased potatoes from further changes. Early in the course of the experiments, it was noticed that a reduction of temperature by exposure to cold air, greatly diminished the rapidity of decay, while a slight increase of temperature hastened it; moisture being present or not.

Heat in a moist atmosphere increased the destruction, and samples which had been cooled, and thereby partly protected, readily passed through all the changes when again exposed to warm and humid air. After using several substances by direct contact with diseased parts of potatoes, I soon found that the mixture of sulphureous acid, nitrogen, and common air, such as exists when sulphur is burnt in closed vessels, would prevent the further progress of the disease in tubers already affected, and when exposed in contact with tubers, passing through all stages of the disease, no further change in the prepared ones was induced.

The trials were varied, and the uniformity of the results has led me to conclude, that the fumes of burning sulphur, coming in contact with potatoes partly diseased. will arrest the further progress of the disease and prevent decay. It is proper that this conclusion should be received as an expression of fact, under the circumstance of experiments on a small scale, and with no more than two varieties of potatoes; but I confidently expect that the importance of the application will be seen in the largest exhibition of its effects.

The practical use of the sulphureous acid gas is very simple and not expensive. Crude sulphur inflamed in a shallow cast-iron vessel, or an earthen pot, furnishes the fumes which may be led by wooden pipes to the lower part of bins filled with the roots, until the unocupied space is filled with them. As the fumes cool, they become heavier than air and will then enter every interstice. By placing the pot of burning sulphur in an empty barrel and inverting over it a barrel filled with potatoes, having a light rack in place of a head, the fumes will slowly rise within and impregnate the mass; the barrel and contents being then removed, and the head replaced, the exposure may be considered as ample. Where the quantity is large, it would be more economical to leave a space vacant, below the loose floor on which they repose, and introduce these fumes until every part of the heap of potatoes has received a share.

It should be remembered that this application will injure, if not destroy the vegetating power of the tubers, and that although this result may be highly desirable for all that are preserved for food, those intended for seed should not be so treated.

AGRICULTURE.—It is an innocent pursuit, that can do injury to no one. It invades no man's just rights, and prejudices no man's safety, health, peace, or reasonable enjoyment. It is a beneficial employment, for whoever cultivates the earth, and covers it with rich and golden crops, renders it more beautiful; and whoever causes the earth to yield its fruits, increases the means of human comfort and subsistence.

PREMIUMS AND REGULATIONS

OF THE AGRICULTURAL ASSOCIATION OF UPPER CANADA, FOR THE ANNUAL SHOW TO BE HELD AT THE TOWN OF NIAGARA, SEPTEMBER 18, 19 & 20, 1850.

OFFICERS, 1850.

PRESIDENT.

JOHN WETENHALL, Esq., Nelson.

FIRST VICE PRESIDENT.

JOHN B. MARKS, Esq., Kingston.

SECOND VICE PRESIDENT.

THOMAS CLARK STREET, Esq., Niagara Falls.

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[These consist of Delegates from the County Agricultural Societies in Upper Canada, and the Ex-Presidents of the Association.]

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THOS G. RIDOUT, Esq., Bank of Upper Canada.
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SECRETARY.

GEORGE BUCKLAND, Toronto.

CLASS A.—HORNED CATTLE.

DURHAMS.

Best Bull,	£7	10
2d do	4	0
3d do	2	0

Best 3 year old Bull,	£6 0
2d do	3 10
3d do	1 10
Best 2 year old Bull,	5 0
2d do	3 0
3d do	1 10
Best Bull, 1 year old,	4 0
2d do	2 0
3d do	1 0
Best Bull Calf of 1849,	2 10
2d do	1 10
3d do	1 0
Best Cow,	5 0
2d do	3 0
3d do	2 0
Best 3 year old Cow,	4 0
2d do	2 10
3d do	1 10
Best 2 year old Heifer,	3 0
2d do	2 0
3d do	1 0
Best 1 year old Heifer	2 10
2d do	1 10
3d do	1 0
Best Heifer Calf of 1849,	1 10
2d do	0 15
3d do	0 10

CLASS B.—DEVONS.

Best Bull,	£7 10
2d do	4 0
Best 2 year old Bull,	5 0
2d do	3 0
Best Bull, 1 year old,	4 0
2d do	2 0
Best Bull Calf of 1849,	2 10
2d do	1 10
Best Cow,	4 0
2d do	2 10
Best 2 year old Heifer,	3 0
2d do	2 0
Best 1 year old Heifer,	2 10
2d do	1 10
Best Heifer Calf of 1849,	1 10
2d do	0 15

CLASS C.—HEREFORDS.

Best Bull,	£7 10
2d do	4 0
Best 2 year old Bull,	5 0
2d do	3 0
Best Bull, 1 year old,	4 0
2d do	2 0
Best Bull Calf of 1849,	2 10
2d do	1 10
Best Cow,	4 0
2d do	2 10
Best 2 year old Heifer,	3 0
2d do	2 0
Best 1 year old Heifer.	2 10
2d do	1 10
Best Heifer Calf of 1849,	1 10
2d do	0 15

CLASS D.—AYRSHIRES.

Best Bull,	£7 10
2d do	4 0
Best 2 year old Bull,	5 0
2d do	3 0
Best Bull 1 year old,	4 0
2d do	2 0
Best Bull Calf of 1849,	£2 10
2d do	1 10
Best Cow,	4 0
2d do	2 10
Best 2 year old heifer,	3 0
2d do	2 0
Best 1 year old heifer,	2 10
2d do	1 10
Best Heifer Calf of 1849,	1 10
2d do	0 15

A certificate of pedigree will be required for all the above animals to show that they are either imported thorough bred stock, or bred in the country from such stock.

CLASS E.—GRADE CATTLE.

Best Cow	£4 0
2d do	2 10
3d do	1 10
Best 3 year old Cow,	3 5
2d do	2 5
3d do	1 5
Best 2 year old Heifer,	3 0
2d do	2 0
3d do	1 0
Best 1 year old Heifer,	2 10
2d do	1 10
3d do	1 0
Best Heifer Calf of 1849,	1 10
2d do	0 15
3d do	0 10

A certificate to be produced to show the breeding of animals in Class E.

FAT CATTLE—ANY BREED.

Best Ox or Steer,	£3 0
2d do	2 0
Best Cow or Heifer,	3 0
2d do	2 0
Best Yoke of Working Oxen,	3 0
2d do	2 0

No animal entitled to compete for a premium in more than one of the foregoing classes.

CLASS F.—HORSES.

Best Stallion for Ag. purposes,	£7 10
2d do	5 0
3d do	2 10
Best Heavy Draught Stallion,	7 10
2d do	5 0
3d do	2 10
Best 3 year old Stallion, do	5 0
2d do	3 0
3d do	1 0
Best 2 year old Gelding or Filly,	3 0
2d do	2 0
3d do	1 0
Best Span matched Carriage Horses,	4 0
2d do	3 0
3d do	1 0
Best Span Draught Horses,	4 0
2d do	3 0
3d do	1 0
Best brood Mare and Foal, or evidence that the foal has been lost,	5 0
2d do	3 0
3d do	1 0

CLASS G.

Best thorough bred Stallion,	£5 0
2d do	3 0
3d do	1 0

Best thorough bred Stallion 3 years old,	5 0
2d do	3 0
Best 2 years old do	1 0
Best thorough Bred 2 year old Gelding or Filly,	3 0
2d do	2 0
3d do	1 0
Best thorough Bred Mare and Foal,	5 0
2d do	3 0
3d do	1 0

Pedigree to be produced.

CLASS H.—SHEEP.

LEICESTERS.

Best ram, 2 shears and over,	£4 0
2d do	2 0
3d do	1 0
Best shearling Ram,	2 10
2d do	1 10
3d do	0 15
Best Ram Lamb,	2 0
2d do	1 0
3d do	0 10
Best 2 Ewes, 2 shears and over,	4 0
2d do	3 0
3d do	1 10
Best 2 shearling Ewes,	3 0
2d do	2 0
3d do	1 0
Best 2 Ewe lambs,	1 10
2d do	1 0
3d do	0 10

SOUTH DOWNS.

Best Ram, 2 shears and over,	£4 0
2d do	2 0
3d do	1 0
Best shearling Ram,	2 10
2d do	1 10
3d do	0 15
Best Ram Lamb,	2 0
2d do	1 0
3d do	0 10
Best 2 Ewes, 2 shears and over,	4 0
2d do	3 0
2d do	1 10
Best 2 shearling Ewes,	3 0
2d do	2 0
3d do	1 0
Best 2 Ewe Lambs,	1 10
2d do	1 0
3d do	0 10

MERINOS OR SAXONS.

Best Ram, 2 shears and over,	£4 0
2d do	2 0
3d do	1 0
Best shearling Ram,	2 10
2d do	1 10
3d do	0 15
Best Ram Lamb,	2 0
2d do	1 0
3d do	0 10
Best 2 Ewes, 2 shears and over,	4 0
2d do	2 0
3d do	1 0
Best 2 shearling Ewes,	3 0
2d do	2 0
3d do	1 0
Best 2 Ewe Lambs,	£1 10
2d do	1 0
3d do	0 10

FAT SHEEP.

Best 2 Fat Weathers,	£3 0
2d do	2 0
3d do	1 0

CLASS I.—PIGS.

Best Boar, 1 year and over,	£3 0
2d do do	2 0
3d do do	1 0
Best Breeding Sow, 1 year and over	3 0
2d do do	2 0
3d do do	1 0
Best Boar of 1850.	2 0
2d do	1 10
3d do	1 0
Best Sow of 1850.	2 0
2d do	1 10
3d do	1 0

In this class the precise age of the animals is to be stated on the cards.

CLASS J.—AGRICULTURAL IMPLEMENTS.

Best Wooden Plough,	£2 0
2d do	1 10
3d do	1 0
Best Iron Plough,	2 0
2d do	1 10
3d do	1 0
Best Subsoil Plough,	2 0
2d do	1 10
3d do	1 0
Best pair of Harrows,	1 0
2d do	0 15
3d do	0 10
Best Fanning Mill,	1 10
2d do	1 0
3d do	0 10
Best Horse Power Thrasher and Separator,	5 0
2d do	3 0
3d do	2 0
Best Grain drill,	3 0
2d do	2 0
3d do	1 0
Best Seed Drill or Barrow,	1 0
2d do	0 15
3d do	0 10
Best Straw Cutter,	1 0
2d do	0 15
3d do	0 10
Best Smut Machine,	1 10
2d do	0 15
Best Portable Grist Mill,	3 0
2d do	2 0
3d do	1 0
Best Grain Cracker.	2 0
2d do	1 10
3d do	1 0
Best Corn and Cob Crusher,	1 0
2d do	0 15
3d do	0 10
Best machine for Cutting Roots for Stock,	1 10
2d do	1 0
3d do	0 15
Best Clover Machine,	2 0
2d do	1 5
3d do	0 10

Best 2 Horse Wagon,	£3 0
2d do	2 0
3d do	1 0
Best Horse Cart,	1 10
2d do	1 0
3d do	0 10
Best Horse Rake,	1 0
2d do	0 15
3d do	0 10
Best Metal Roller.	2 0
Best Wooden Roller,	1 5
Best reaping Machine,	5 0
2d do	3 0
3d do	2 0
Best Stump Extractor,	2 0
2d do	1 0
3d do	0 10
Best Mowing Machine,	5 0
2d do	3 0
3d do	2 0
Best Potato Digger,	0 15
2d do	0 10
3d do	0 5
Best Thistle Extractor,	0 10
2d do	0 5
Best Farm Gate,	0 15
2d do	0 10
3d do	0 5
Best Cultivator,	1 10
2d do	1 0
3d do	0 10
Best Machine for making Drain Tiles	2 10
2d do	1 10
Best Brick-making Machine,	2 10
2d do	1 10
Best set of Horse Shoes,	15
2d do	10
3d do	5
Best half-dozen Hay Rakes,	10
2d do	7
3d do	5
Best half-dozen narrow Axes,	15
2d do	10
3d do	5
Best half-dozen Manure forks,	15
2d do	10
3d do	5
Best half-dozen Hay Forks.	15
2d do	10
3d do	5
Best Half-dozen Scythe Snaiths.	15
2d do	10
3d do	5
Best Ox Yoke and Bows,	15
2d do	10
Best Grain Cradle,	10
2d do	5
Best half-dozen Grain Shovels, wood,	15
2d do	10
3d do	5

Every article exhibited to be of Canadian Manufacture, and exhibited by the Manufacturer only.

CLASS K.—DOMESTIC MANUFACTURES.

Best 1 Horse Pleasure Carriage,	£2 0
2d do	1 10
3d do	0 10
Best 2 Horse pleasure Carriage,	2 0
2d do	1 10
3d do	0 15
Best set of Farm Harness,	1 10
2d do	1 0
3d do	0 10
Best set of Pleasure Harness,	£1 10
2d do	1 0
3d do	0 10
Best Saddle and Bridle,	1 0
2d do	0 15
Best Travelling Trunk;	1 10
2d do	10
3d do	5
Best side of Sole Leather,	15
2d do	10
3d do	5
Best side of Upper Leather,	15
2d do	10
3d do	5
Best Calf Skin, Dressed,	15
2d do	10
3d do	5
Best side of Harness Leather,	15
2d do	10
3d do	5
Best 4 or 6 Pannelled Door,	15
2d do	10
3d do	5
Best Fur Hat,	15
2d do	10
3d do	5
Best Window Sash, 12 lights, hung in frame	15
2d do	10
3d do	5
Best Fur Cap,	15
2d do	10
2d do	5
Best Fur Sleigh Robe,	15
2d do	10
3d do	5
Best specimen Bootmaker's work,	15
2d do	10
3d do	5

Manufacturers only to exhibit.

CLASS L.—WOOLLEN AND FLAX GOODS.

Best specimen of Broad Cloth, not less than ten yards, Diploma and	£5 0
2d do	3 0
Best specimen of Tweed Cloth, not less than ten yards Diploma and	3 0
2d do	2 0
Best pair Blankets, Diploma and	5 0
2d do	3 0

The above premiums to be paid upon the Exhibitors giving a guarantee that they will send the prize articles to the great Exhibition in England, in 1851.

Best piece of not less than 12 yards of Woolen Carpet,	£2 0
2d do	1 0
3d do	10
Best 12 yards, or over, Oil Cloth,	1 0
2d do	10
3d do	5
Best pair of Woolen Blankets,	2 0
2d do	1 0
3d do	10
Best Counterpane	1 0
2d do	15
3d do	10
Best piece 12 yards Flannel,	1 0
2d do	15
3d do	10
Best piece Satinett, 12 yards,	1 0
2d do	15
3d do	10

Best piece Broad Cloth, from Canadian

Wool,	£2	0
2d do	1	0
3d do		10
Best piece Flannel, 10 yards, not factory make		15
2d do		10
3d do		5
Best piece Winter Tweed 12 yards,	1	0
2d do		15
3d do		10
Best piece Fulled Cloth, 10 yards not factory made		15
2d do		10
3d do		5
Best Shawls, not factory made,		15
2d do		10
3d do		5
Best piece Linen Goods,		15
2d do		10
3d do		5
Best 3 samples of Flax and Hemp Cordage,		15
2d do		10
3d do		5
Best 40 pounds of Hemp,		15
2d do		10
3d do		5
Best 40 pounds Flax,		15
2d do		10
3d do		5
12 best Linen Bags, manufactured from flax growth of Canada,	1	0
2d do		15
3d do		10

Manufacturers only to exhibit.

CLASS M.—DAIRY PRODUCTS, AND SUGAR.

Best Cheese, not less than 50lbs, Diploma &	£4	0
2d do	3	0
3d do	2	0
Best Firkin of butter, not less than 56lbs, neatly packed for exportation, Diploma &	4	0
2d do	3	0
3d do	2	0

The articles obtaining the above prizes, will become the property of the Association, and will be sent to the great Exhibition in England in 1851.

Best cheese not less than 20lbs,	£1	10
2d do	1	0
3d do		10
Best Butter, not less than 20lbs, in Firkins, Crocks, or Tubs,	1	10
2d do	1	0
3d do		10
Best 30lbs Maple Sugar,	1	0
2d do		10
3d do		5
Best 30lbs Beet Root Sugar,	1	0
2d do		10
3d do		5
Best 20lbs Corn Stalk Sugar,		15
2d do		10
3d do		5
Best Sugar made by Indians,		15
2d do		10
3d do		5

CLASS N.—CABINET WARE, &c.

Best set of blackwalnut drawing room furniture, Diploma and	£15	0
2d do	10	0
Best set of Curled Maple drawing room furniture Diploma and	£15	0
2d do	10	0

The above premiums to be paid upon the exhibitors giving a guarantee that they will send the prize articles to the great Exhibition in England in 1851.

Best Centre Table,	£1	0
2d do		15
3d do		10
Best Dining Table,	1	0
2d do		15
3d do		10
Best Easy Arm Chair,		15
2d do		10
3d do		5
Best Sofa,	3	0
2d do	1	10
3d do	1	0
Best 6 Dining Room Chairs,	1	5
2d do	1	0
3d do		15
Best 6 Drawing Room Chairs,	1	5
2d do	1	0
3d do		15
Best Ottoman,	1	0
2d do		15
3d do		10
Best Work Box,		10
2d do		5
Best Writing desk,		10
2d do		5
Stuffed Birds,	£1	0
Second do		10
Picture Frame, gilt,	1	0
Second do		10
Picture Frame, veneered,	1	0
Second do		10
Stucco Moulding,	1	0
Second do		10
Stained Glass,	1	0
Second do		10
Dentistry, Diploma and	1	0
Second do		10

CLASS O.

AGRICULTURAL PRODUCTIONS.

The Canada Company's Prize.

For the best 25 bushels of *Fall Wheat* the produce of Canada West, being the growth of 1850	£25	0	0
2d 25 bushels of Fall Wheat, (offered by the association.)	12	10	0
Best manufactured and most neatly and securely packed barrel of Flour,—Diploma and	3	0	0
2d do	2	0	0

These four premiums to be given to the actual growers and manufacturers only;—and the wheat and flour will become the property of the Association. The whole will be sent to the great exhibition to be held in England in 1851. Exhibitors will be required to state the nature of the soil, mode of cultivation, time of sowing, amount of produce per acre, and the kind and quantity of manure [if any] applied.

Best 2 bushels Winter Wheat	2	0
2d do	1	5
3d do	1	0
Best 2 bushels Spring Wheat,	2	0
2d do	1	5
3d do	1	0

Best 2 bushels Barley,	£0 15
2d do	0 10
3d do	0 5
Best 2 bushels Spring Rye,	1 0
2d do	0 15
3d do	0 10
Best 2 bushels of Oats,	0 10
2d do	0 5
Best 2 bushels of Peas,	0 10
2d do	0 5
Best two bushels Indian Corn in the ear,	0 10
2d do	0 5
Best bushel Timothy Seed,	0 15
2d do	0 10
Best bushel Clover Seed,	1 0
2d do	0 15
Best bushel Hemp seed,	0 10
2d do	0 5
Best bushel Flax Seed,	0 10
2d do	0 5
Best Swedish Turnip Seed, not less than 10lbs	0 10
2d do	0 5
Best bale of Hops,	2 10
2d do	1 10
Best 2 bushels of Potatoes,	10
2d do	7 6
Best 2 bushels Swedish Turnips,	10
2d do	7 6
Best bushel Carrots,	10
2d do	7 6
Best bushel Mangold Wurtzel.	10
2d do	7 6
Best bushel Sugar Beet,	10
2d do	7 6
Best bushel Parsnips,	10
2d do	7 6

HORTICULTURAL PRODUCTS.

Best varieties of Apples,	£0 15
2d do	10
3d do	5
Best 12 Table Apples,	10
2d do	7 6
3d do	5
Best 12 Winter Apples,	10
2d do	7 6
3d do	5
Best and greatest variety of Pears,	15
2d do	10
3d do	5
Best 12 Table Pears,	10
2d do	7 6
3d do	5
Best 12 Winter Pears,	10
2d do	7 6
3d do	5
Best dozen Plums,	10
2d do do	5
Best do Peaches, [grown in hot house]	10
2d do do	5
Best do do [grown in open air]	10
2d do do	5
Best Grapes, [grown in hot house]	10
2d do do	5
Best Grapes, [grown in open air]	10
2d do do	5
Best 2 Pumpkins,	10
2d do do	5
Best 4 Squash,	10
2d do do	5
Best 12 Tomatoes,	10
2d do do	5
Best 4 heads Broccoli,	£0 10
2d do do	5
Best 4 heads Cauliflower,	10
2d do do	5
Best 4 heads Cabbage,	10
2d do do	5
Best 12 Carrots for table,	10
2d do do	5
Best 12 Roots of White Celery,	10
2d do do	5
Best 12 roots of red Celery,	10
2d do do	5
Best 6 Egg Plants,	10
2d do do	5
Best 12 Blood Beats,	10
2d do do	5
Best peck of White Onions,	10
2d do do	5
Best peck of yellow Onions,	10
2d do do	5
Best peck of red Onions,	10
2d do do	5
Best 12 roots of Salsify,	10
2d do do	5
Best half bushel white Turnips,	10
2d do do	5
Best peck of white Beans,	10
2d do do	5
Best dozen Dahlias,	10
2d do do	5
Best col. Green-house Plants, [not less than 12 specimens]	1 0
2d do do	10
Best Canada Coffee 12 lbs,	10
2d do do	5
Best Water Melon,	10
2d do do	5
Best Musk Melon,	10
2d do do	5

CLASS P.—IRON AND HOLLOW WORKS.

Best cooking Stove with furniture,	£1 10
2d do	1 0
3d do	10
Best Parlor Stove,	1 0
2d do	10
3d do	5
Best Balance Scales,	1 0
2d do	15
3d do	5
Best Model Hot-air Apparatus,	1 10
2d do	15
Best Steaming Apparatus for Feeding Stock	1 10
2d do	1 0
Best set of Cooper's Tools,	15
2d do	10
Best set of Bench Planes,	15
2d do	10
Best half-dozen Corn Brooms,	7 6
2d do	5
Best specimen Willow Ware,	10
2d do	5
Best Wooden Pail,	5
2d do	3 9
Best Wash-tub,	7 6
2d do	5
Best Washing Machine,	10
2d do	5
Best pare of Hames,	10
2d do	5
Best Saddle-tree,	10
2d do	5

Best Weaver's Reeds,	£ 10
2d do	5
Best Board Rule,	10
2d do	5
Best Spinning Wheel,	10
2d do	5
Best Churn,	10
2d do	5
Best Augers from ½ to 2 inches,	10
2d do	5
Best Earth Auger,	10
2d do	5
Best specimen 20lbs Cut Nails,	10
2d do	5
Best Blacksmith's Bellows,	1 5
2d do	15
Best Model Beehive,	10
2d do	5
Best Rifle,	15
2d do	10

Makers only to exhibit for premiums.

CLASS Q.—LADIES' DEPARTMENT.

Best specimen of Woollen or Cotton Netting,	£0 15
Second do	10
Best specimen Fancy Netting,	15
Second do	10
Best specimen of Embroidery,	1 0
Second do	15
Best specimen Raised Worsted Work,	1 0
Second do	15
Best specimen Wax Fruit,	15
Second do	10
Best specimen Wax Flowers,	15
Second do	10
Best pair Woollen Socks,	10
Second do	5
Best pair Woollen Stockings,	10
Second do	5
Best pair Woollen Mittens,	10
Second do	5
Best pair of Woollen Gloves,	10
Second do	5
Best Straw Hat of Canadian Straw,	10
Second do	5
Best specimen of Gentlemen's Shirts,	15
Second do	10
Third do	5
Best specimen Quilts,	1 5
Second do	1 0
Third do	15

CLASS R.—FINE ARTS.

In Oil.

Historical painting, Canadian subject, Diploma and	£3
Second best,	2
Landscape—Canadian subject, Diploma and	3
Second best,	2
Animals (grouped or single) Diploma and	3
Second best,	2
Portrait, Diploma and	2 10
Second best,	1 10

In Water Colors.

Landscape—Canadian subject, Diploma and	2 10
Second best,	1 10
Portrait, Diploma and	2
Second best,	1
Animals (grouped or single) Diploma and	2 10
Second best,	1 10
Miniature, Diploma and	2
Second best,	1 10
Flowers, Diploma and	£1 10
Second best,	1

Pencil and Crayon.

Pencil Portrait, Diploma and	1 10
Second,	1
Crayon Portrait, Diploma and	1 10
Second,	1
Pencil Drawing, Diploma and	1 10
Second,	1
Crayon do Diploma and	1 10
Second,	1
Colored Crayon, Diploma and	1 10
Second,	1
Daguerreotype best collection, the exhibitor to have operated in Canada West for the last 12 months, Diploma and	1 10
Second best,	1
Lithographic Drawing unprinted, Diplom &	1 10
Second best,	1
Wood engraving, Diploma and	1 10
Second best,	1
Engraving on Copper, Diploma and	1 10
Second best,	1
Engraving on Steel, Diploma and	1 10
Second best,	1
Ornamental Writing, Diploma and	1
Second best,	10

All articles in Q and R exhibited by *Ladies* to be admitted *free*. All articles entered in R must have been executed since the last Exhibition of this association.

CLASS S.—POTTERY.

Best specimen Pottery,	£0 15
2d do	10
Best specimen Draining Tile	15
2d do	10
3d do	5
Best dozen Bricks,	15
2d do	10
3d do	5

CLASS T.—BOOKBINDING, PAPER, &c.

Best specimen Book binding,	£1 0
2d do	15
3d do	10
Best Ream of Writing Paper,	1 0
2d do	15
3d do	10
Best ream of Printing Paper,	1 0
2d do	15
3d do	10
Best specimen Letter Press Printing, executed since last Exhibition	2 10
2d do	1 10
3d do	1 0

CLASS U.—INDIAN PRIZES.

Best Bark Canoe,	£1 10
2d do	15
Best 4 Paddles,	10
2d do	5
Best Indian Cradle,	15
2d do	10
Best pair Snow Shoes, (common size)	15
2d do	10
Best pair Snow Shoes, (8 in. long)	10
2d do	5

Best Tobacco Pouch worked with Porcupine Quills	£0	5
2d do		3
Best Pipe of Peace,		15
2d do		10
Best Pipe of War,		15
2d do		10
Best pair Moccasins (plain)		5
2d do		3
Best pair Moccasins (worked with Porcupine Quills,)		7
2d do		5
Best pair Moccasins [worked with Beads,]		7
2d do		5
Best Fruit Basket,		7
2d do		5
Best Clothes Basket,		7
2d do		5
Best Hand Basket,		7
2d do		5

All Articles exhibited by Indians, admitted free.

CLASS V.—PLOUGHING MATCH.

Best Ploughman over 18 years of age,	£4	0
2d do	3	0
3d do	2	0
4th do	1	0
Best Ploughman under 18 years of age,	4	0
2d do	3	0
3d do	2	0
4th do	1	0

CLASS W.—POULTRY.

Best pair Dorking Fowls,	£0	10
2d do		5
Best pair of Poland Fowls,		10
2d do		5
Best pair Large Breed Fowls,		10
2d do		5
Best pair Turkeys,		10
2d do		5
Best pair Large Geese,		10
2d do		5
Best pair Topknot Ducks,		10
2d do		5
Best pair Muscovy Ducks,		10
2d do		5
Best pair Common Ducks,		10
2d do		5
Best pair Guinea Fowls,		10
2d do		5
Best lot Poultry owned by the Exhibitor,		10

CLASS X.—GENERAL CLASS.

Premiums for Stock belonging to persons residing in the United States, or Canada East, and all others who are not competitors in other classes.

Best Durham Bull not over 5 years,—Diploma, and			£2	10
2d do	do		2	10
Best Durham Cow,	do	Diploma and	1	10
2d do	do		1	10
Best Ayrshire Bull,	do	Diploma and	2	10
2d do	do		2	10
Best Ayrshire Cow,	do	Diploma and	1	10
2d do	do		1	10
Best Hereford Bull,	do	Diploma and	2	10
2d do	do		2	10
Best Hereford Cow,	do	Diploma and	1	10
2d do	do		1	10
Best Devon Bull	do	Diploma and	£2	10
2d do	do		2	10
Best Devon Cow,	do	Diploma and	1	10
2d do	do		1	10
Best Stallion for Agricultural purposes—Diploma and			3	0
2d do	do		3	0
Best Blood Stallion,	do	Diploma and	3	0
2d do	do		3	0
Best Leicester Ram,	Diploma and		1	10
2d do	do		1	10
Best 2 Leicester Ewes,	Diploma and		1	10
2d do	do		1	0
Best Southdown Ram,	Diploma and		1	10
2d do	do		1	0
Best 2 Southdown Ewes,	Diploma and		1	10
2d do	do		1	0
Best Merino or Saxon Ram,	Diploma and		1	10
2d do	do		1	0
Best 2 Merino or Saxon Ewes,	Diploma and		1	10
2d do	do		1	0

AGRICULTURAL IMPLEMENTS.

Best Sub-soil Plough—Diploma and	£1 0
" pair Harrows	1 0
" Fanning Mill—Diploma and	1 0
" Horse-power Thrasher and Separator—Diploma and	2 10
" Seed Drill or Barrow,	1 0
" Straw Cutter,	1 0
" Smut Machine,	1 10
" Portable Grist Mill,—Diploma and	2 10
" Grain Cracker,	1 10
" Machine for Cutting Roots for Stock,	1 0
" Corn and Cob Crusher,	1 0
" Clover Machine,—Diploma and	2 0
" Reaping Machine,—Diploma and	2 10
" Best Cultivator,—Diploma and	1 5
" Assortment of Agricultural Implements and Edge Tools,—Diploma and	5 0

Each Competitor in this Class to pay entrance Fee, except those residing out of Western Canada.

RULES AND REGULATIONS.

1st. The payment of 5s constitutes a person a Member of the AGRICULTURAL ASSOCIATION OF UPPER CANADA for one year; and *Two Pounds Ten Shillings* for LIFE.

2d. No one but a Member will be allowed to compete for Prizes, except in Classes Q. U. X.

3d. All Stock and Articles intended for Exhibition, must be entered in the Secretary's Books, at Niagara, before 8 o'clock on *Tuesday evening*, the 17th of September; if by letter the postage must be paid, and the person entering must remit 5s. being the amount of subscription constituting a member, and 7½d extra for each article *above three.*

4th. Members exhibiting more than *Three* Articles for competition to pay 7½d. extra on each.

5th. Badges from the Secretary's Office will be furnished Members, which will admit them

and their Ladies and children under 18 years of age in carriages, free to every department of the Exhibition during the Show. Life Members admitted with their families *free*.

6th. Tickets for admission to those who are not members 7½d. each time of admission. Carriages, including drivers, 2s. 6d.; passengers to pay 7½d. each. Horsemen, not members, to pay 1s. 3d. each admission.

7th. Every article exhibited for competition, must be the growth, produce, or manufacture of Upper Canada, except Class X. Live Stock for breeding must be the property of persons residing in Upper Canada.

8th. Discretionary Premiums will be awarded for such articles as may be considered worthy by the Judges, although not enumerated in the list, and the Committee will determine the amount of premium.

9th. The Secretary of each County Society is requested to furnish the names of three persons competent to act as Judges, who with the President and other Officers of County or Township Societies that have contributed the required amount to the funds of the Association for 1850, shall be furnished with badges for free admission to the Show Grounds in agreement with a bye-law to that effect.

10th. The Judges, Competitors and Officers of the Association only will be permitted to enter the Show Grounds, until 1 o'clock, p. m., of Wednesday the 18th Sept., at which hour the public will be admitted.

11th. No Articles or Stock exhibited will be allowed to be removed from the grounds till the awards are made, or without the permission of the President, under the penalty of losing the Premiums. An Auctioneer will be on the spot after the premiums are announced, and every facility afforded for the transaction of business.

12th. Delegates, Judges and members of the Press are requested to report themselves at the Secretary's Office immediately on their arrival.

13th. The Judges to meet at the Secretary's Office on *Wednesday morning* at 9 o'clock precisely, to make arrangements for entering immediately upon their duties.

14th. The Secretary will receive entries in Toronto any time previous to the Show week. Afterwards all communications should be addressed to him at Niagara.

15th. It being essential to the satisfactory working of the Exhibition that all articles be entered and forwarded in reasonable time; all such as arrive on *Wednesday morning*, and not previously entered, will be charged an entrance fee of 2s. 6d. each. *All entries will positively close on Wednesday morning at 9 o'clock.* Articles arriving afterwards will be admitted into the Show grounds on payment of 7½d each; but they will be entitled to compete only for *Discretionary premiums.*

16. Arrangements will be made for Lectures and discussions on Agricultural subjects for the evenings of Wednesday and Thursday. Particulars will be duly announced.

17. Every effort will be made for enabling the Treasurer to commence paying the Premiums *early on Friday morning.*

18th. A Ploughing Match will take place in the neighborhood of Niagara on *Friday*, to commence at 9 o'clock in the morning.

N. B.—The Local Committee will make arrangements for the transit and accommodation of visitors; also for Stock, Implements, and other articles for Exhibition, at reduced rates. Full particulars will be announced as soon as the arrangements are completed. Niagara is of easy access by steamboats both for Canada and the United States; and comprises within the radius of a few miles, the most beautiful scenery and sublime natural phenomena on the Continent of North America.

Horticulture.

For the Agriculturist.

CURRANTS—PRUNING AND TRAINING.

Although every one knows that Currants grow freely from slips or cuttings, it is generally preferred, and justly, to procure rooted plants from the Nursery. A description of the method of raising bushes from cuttings may therefore be dispensed with, and some plain directions given for training and pruning. The following remarks are abridged from the *Gardener's Chronicle*, (English,) and point out the usual and generally approved practice. Let it be kept in mind that to have fruitful, well-grown Currant Trees, regular yearly pruning in April is necessary.

"Having procured your plants, let them be trimmed to a straight stem, having three leading shoots of the previous year's growth. Let the lowest of these three leaders branch off about four inches from the ground. The bushes being planted, cut the three shoots back to about four inches in length, taking care to cut each immediately above a bud, pointing *outwards.*

Two shoots should be encouraged from each of these three, so that in the fall, the plant will have six shoots, being the requisite number of branches. Cut off all other shoots to within an inch of their base. At next pruning cut back the six leading shoots to four or five inches in length, of the new wood, and as formerly they should be cut near a bud pointing outwards.—At every future pruning the terminal shoots of the six branches should be shortened to between four and six inches, according to their strength, that is, shorter if weak. When the branches are nearly as high as is desired, the extremities may be annually shortened to two or three buds. With regard to the lateral shoots, they must all be cut to within an inch of the old wood at every pruning."

The general principle recommended in the foregoing extract consists in shortening the leading shoots, and leaving spurs at the extremities of the lateral branches. This system is universally applicable, and will easily be comprehended, and put in practice, with such old bushes as have received little or no previous care.

Gooseberries.—The treatment required by the Gooseberry differs in no essential particular from the Currant; therefore such directions as are given for the one may be applied to the other, with the exception of shortening the leading branches, which should not be done with Gooseberries, after the head is properly formed. Regular and liberal pruning, of both old and new wood, is invariably necessary. Early in April cut out cross shoots, and all superfluous branches, leaving at the laterals a stub of two eyes to send out fruit buds, and spurs, and also leaving a sufficiency of last year's growth in suitable vacancies to form sufficient bearers, and supply the place of dead and decaying wood. The best fruit is borne on young wood, which should be allowed to distribute itself properly through the bush, always taking care to prevent such crowding as to exclude abundance of light and air.

It is not unusual to hear complaints of want of success in growing fruitful Gooseberry plants. This arises no doubt from the extreme heat and drought of Canadian summers. A successful remedy for this consists in covering the ground under the bushes with litter or straw. A sprinkling of salt on the litter, has also been found of eminent service, in attracting moisture and keeping the ground cool. *Mildew* is sometimes found troublesome in attacking the half grown fruit. To prevent and cure this, it is necessary to plant the bushes in a soil, either naturally a strong loam, or made so by trenching and manuring. A rich soil, a heavy top-dressing of manure dug in yearly around the plants, and a thorough annual pruning, will in general insure a good crop, and for the pains bestowed, amply repay every lover of this wholesome and useful fruit.

March, 1850. George Leslie.

Price at the Toronto Nursery.

Currants—red, white and black, per doz.		4s.
Gooseberries in 40 varieties	"	10s.

CULTIVATION OF STRAWBERRIES, GRAPES, AND RASPBERRIES.

For the Agriculturist.

Strawberries.—As the season for planting is just at hand—the following plan of Strawberry culture, although not new, has the recommendation of being successful in producing fine crops. The ground having been first trenched two spades deep, and a coating of *Dung* afterwards pointed in, the plants are taken as soon as they can be obtained, and planted in rows 2 feet apart, and 18 inches distant in the rows—if the weather is dry after they are planted, they should be well watered and short grass or well rotted manure spread over the ground to retain the moisture, the plants do not bear a full crop until the second year after planting, and after having borne for three years they should be removed, it being found that the crop is never so good after that time; by this mode of culture excellent crops of large and well flavored strawberries are always produced.

The varieties of this fruit are very numerous. The following are a few select sorts that will answer well in most parts of Canada: Early Scarlet, Hovey's Seedling, Keen's Seedling, Black Prince, Ross Phenix, Myatt's Eliza, Red and White Alpine.

Grapes.—As few things are more pleasing in a garden than a supply of grapes, and as but comparatively few persons, can afford the expense of time and money demanded by a *Grapery*, any improvements respecting *vines* out of doors must be acceptible. The preparation of the soil has much to do with the successful cultivation of the Grape. A low, damp, undrained situation never can succeed, and *nature* and *art* should both be laid under contribution to gain a warm wall for the branches, and a dry porous soil for the roots. The whole art of pruning the vine is dependent on the physiological fact in its history, that it only produces fruit on the wood which is the growth of the previous year, the knife must therefore be so used as to get rid annually of old branches to be replaced by new ones.—Care must be taken not to have too much wood, and perhaps 8 inches apart is the medium distance to be observed in nailing in the branches which must be shortened according to the ripeness and strength of each. About four or six eyes will be enough to leave unless the stem is very strong. The sorts that will succeed best in the open air are the *Sweet Water*, Isabella, and Catawba.

THE RASPBERRY.—As the fruit of the Raspberry is held in much estimation for the dessert, and coming into season after the strawberry, and being with the latter of a very wholesome nature, and adapted to the soil and climate of this country a few words respecting its cultivation may not be unacceptable to the readers of the *Agriculturist*.

Downing observes in his excellent treatise on the "*Fruits and Fruit Trees of America*," that the Raspberry forms one of the most invaluable fruits, and that not being liable to undergo the acetous fermentation in the stomach, it is considered beneficial in cases of gout or rheumatism.

The Raspberry is propagated very readily from suckers, which spring up in great abundance from the old roots. The soil should be rich and deep; a thorough trenching would be a beneficial preparation. Choose a warm open space for planting. The young canes or suckers may be placed in rows from 3 to 4 feet apart, and the same distance between the rows, if the sort be of vigorous growth and the soil rich. It is a good practice to put two or three plants together in a group. It should be remembered that crowding the plants together prevents the berries from growing large and injures their flavor; to obtain firm large fruit the free access of light and air is an absolute requisite.

Pruning is a very simple business, and should be performed early in the spring. Leave about half a dozen of their strongest and healthiest looking shoots of the last year's growth in each group, and remove all old wood and inferior suckers. Cut off about a foot of the tops of the remaining shoots; and spread over the surface a little well rotted manure, which must be carefully dug in. Nothing more will be required, but an occasional slight hoeing to keep down weeds. A Raspberry plantation will come, with proper mangement, into full bearing in the third year, and will usually maintain its vigor for about half a dozen years, when a fresh site should be adopted.

In the colder and more exposed parts of the Province it is a good practice to prune in the fall and bind down the canes, and lightly cover them with earth, or other materials to protect them from the action of frost, which in severe winters will kill the more tender varieties.

The sorts most suitable to our climate are the Red and White Antwerp; Franconia, a large and hardy variety; Fastolff, a very fine fruit, the two latter being peculiarly adapted to the climate of Canada; American Red and the American Black, are used for flavoring liquors and cooking. The Ever-bearing and the Ohio Everlasting, are very late bearing varieties. For fuller particulars the reader is referred to the Treatise before mentioned.

JAMES FLEMING.

Yonge St., Nursery,
Toronto, March, 1850.

ONIONS FROM TIME IMMEMORIAL.

To give some idea to those who have not thought on the subject of the effects of age upon a cultivated soil, I shall here mention a fact that struck me as being not a little singular at the time it occurred. At Dunstaffnage, near Oban, in Argyleshire, Scotland, which is a mountainous country, and naturally a barren soil, a small garden was pointed out to me, on which was growing at the time one of the finest crops of onions I had ever seen. I took notice of it with some degree of surprise, because I had seen no other crop of onions in that district that was tolerable; but my surprise was a good deal augmented on being told, that the present crop in that garden was by no means remarkable; that it had been cropped with onions year after year, from time immemorial; that the present owner of it, who was a man above eighty years of age, had never seen any other crop than onions upon that ground; and that the oldest person alive, when he was a boy, had told him the same thing, and the crop was always an excellent one. Dunstaffnage was a royal palace, belonging to the kings of Scotland at an early period of their history, almost beyond record; and there can be little reason to doubt that this garden was brought under cultivation at that time, so that it cannot now be less than five hundred years old, and probably several hundred years more. I question much if the soil could have been rendered capable of producing successive crops of such fine onions, for a great many years after it was first turned up from the waste, by any device that the ingenuity of man could have suggested. To judge then, of the most profitable mode of cropping such old soils, by the same rules that would apply to those which apply to those which had not had time to be fully matured, would be very absurd. Many cases of this sort would no doubt occur on our survey of the Netherlands, could it be properly effected.—*Dr. Anderson.*

THE VINEGAR PLANT.

This production seems at present to puzzle the learned to find a name for it; as much as it delights the thrifty housewife, who by its use has reduced one item in her grocers' bill, and now finds she can produce a supply of vinegar, equally as good, and at much less expense than formerly. A vinegar plant may not only be propagated, but actually in the first instance *made*, and the following is the recipe given by a writer in the *Family Herald:*—

"Take a quarter of a pound of sugar, and half a pound of treacle, simmer them in three quarts of water till dissolved, then place the mixture in a large vessel, cover it over, and set it in a warm place. In about six or seven weeks you will find floating on the top a tough fleshy substance—this is the vinegar plant: the mixture will have turned to vinegar, but it will not be of such good quality, as when a perfect plant is set upon it at first. The plant will propagate rapidly, and by using it as directed, any quantity of good and cheap vinegar may be made. The vinegar will be of a dark color, which does not affect its quality. It improves by being bottled, and kept for some time prior to use. A bit of thin wood should be set upon the mixture for the plant to float upon, but it should be allowed to come in contact with the liquid."

Brown vinegar will be the result, if common treacle be used; but a pure clear vinegar, if *refined treacle or golden syrup* be substituted.

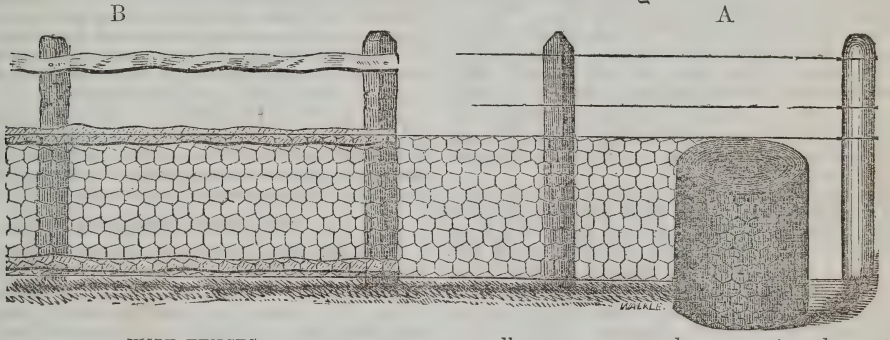
The following recipe has been sent us by a lady, eminently successful in manufacturing this useful commodity:—"Water two quarts, raw sugar half a pound, syrup (refined treacle) or golden syrup quarter of a pound. Let these be well mixed together, the chill taken off, and the plant then spread out over the top. To be kept in a warm dry place, allowing it to remain in the mixture for two months."

The name at present given to this singular fungi, is *Penicillium glaucum*. We believe however, that some of our botanical savans have doubts as to the correctness

of this name. This plant when floating on its acid bed, increases by extension at the sides, and also by subdivision of its parts, and by the formation of an entire coating over the upper surface, attached only to the under or original plant, by a point near its centre. The whole genus of *Penicillium* forms upon decaying bodies, and upon fluids turning acid. This species in particular augments rapidly by the conversion of sugary fluids into vinegar. What affinity exists between this plant, and that known as "mother" of vinegar, we know not; perhaps some of our Cryptogamic friends will inform us.

This plant appears to have been know prior to 1846, for we find at that period it was cultivated as a useful curiosity in various parts of Lancashire. Its history is, however, very obscure, and little is known even of its name and native country, some asserting that it was brought from Italy, and others from the West Indies. Our own opinion is, that it is one of those fungatious products that will make their appearance in situations favorable to their production, and without the visible aid of man. However this may be, one thing is certain, that no family using vinegar ought to be without it.—*North British Agriculturist.*

General Science and Miscellany.



WIRE FENCES.

A good deal of attention has lately, in the State of New York and in some of the Western States, been directed to the subject of Wire Fences. A variety of plans has been proposed, but we have as yet seen none entirely free from objections. In most of these plans the wire is stretched along the posts with sufficient tightness to prevent the smaller animals from pressing between the wires. But it must at once be apparent that in this country at all events, the frost and wind would in a very short time heave and loosen the posts and thereby either break or slacken the wires. No fence made in this way at any reasonable expense would turn hogs, to say nothing of larger animals.

A wire *netting* for fences, has been used for some time in the old country, and appears to us to be free from many of the objections which exist in the other case. We observe that our enterprising townsman Mr. Wm. Gordon, Seed Merchant, is now manufacturing a very substantial kind of netting which will make a neat and effective fence for gardens, yards, &c.

The above cut represents a section of the fence. Figure A exhibits a roll of the web with a couple of strong wires running along the top of the posts. Figure B shows the fence with a wooden railing instead of wire. The web we believe can be furnished at 2s. 6d. per square yard. It can be made of any width. A coat of paint will of course be required to protect the wire from rust. We recommend amateur gardeners and country gentlemen who disregard a small extra expense where taste is to be gratified, to try Mr. Gordon's fence.

A GOSSIP WITH THE LADIES.

The following remarks on a subject of great importance are from the pen of Dr. Lee, the able editor of the *Genesee Farmer*. No one can travel 10 miles through any State of the Union without meeting sad proofs of the *result* stated by the Doctor, whatever their opinion may be of the cause. This evil—the early decay of the female sex—does not strike the observer so forcibly in Canada. But as the country improves in wealth, and luxuries are enjoyed by greater numbers, we see unmistakable evidence of a tendency to the same mournful results in the health and appearance of the young women of the country. How far any of the causes mentioned by Dr. Lee operate to produce this evil let the reader judges and act accordingly.

The people and Legislatures of several States are talking pretty seriously about Agricultural schools and Colleges. Let us talk a little on a subject of equal importance—the education of the fair daughters of our land for the responsible duties of life. It may be said, and truly, that the females of this land are better educated than those of any other country, and that the studies pursued in our female seminaries are of a more solid character than those of similar seminaries in Europe. We grant all this; and still we say that the system of female education is defective—more than this, destructive to the health and consequent happiness of thousands,—making the "sweet home" a home of anxiety, disease and wretchedness, and filling many an untimely grave. You may consider this rather a

a severe and random assertion; but it is too strictly and too fearfully true.

Travel our country over. Look at the young mothers of our land. Are they pictures of health and vigor, or of infirmity and disease? Does the bloom on the cheek denote that the blood is playing healthfully through the veins, or does the sallow complexion and shrunken features show that the purple tide pursues slowly and unwillingly its sluggish course? Does the sparkling eye exhibit the buoyancy of the feelings—is the joy of the heart shown through these windows of the soul; or is the melancholy sunken eye, the index of a sad heart? Mr. Colman, in his European tour, was surprised at the health and consequent buoyancy of spirits of the English women—the mother the equal of the daughter in health and vigor. On the contrary, the wan and faded appearance of American women is remarked by all travellers. The celebrated De Tocqueville spoke much on this subject. Miss Beecher says—"An English mother at thirty or thirty-five, is in the full bloom of perfect womanhood; as fresh and healthful as her daughters. But where are the American mothers who can reach this period unfaded and unworn?"

How few reach this period of age without suffering from head-ache, doulloureux, diseases of the spine, and other nervous diseases so common to the women of this country. We might show the extent of this evil more fully; but, as it will be admitted, we think, that the health and beauty of American ladies are but short lived—that they are peculiarly liable to nervous diseases, destroying their own happiness and the happiness of their families,—and finally life itself—it will be more profitable that we should point out the cause and the remedy.

The cause commences in the cradle, and too often ends in the grave. In infancy, the mother is afraid to have a little of heaven's fresh and balmy air breathe upon her child. Before the child is of proper age it is sent to school—its mental faculties taxed to their utmost capacity, and but little time or opportunity given for the development of the powers of the body by air and exercise. It grows up like a house plant that has been deprived of light and air—weak and puny. The seeds of future suffering, perhaps early death, planted in its frame.

The child is become a young woman; and never having been accustomed to out-door exercise, she has no relish for it,—indeed, custom and fashion are opposed to it. A romp on the green—laboring with the hoe and spade among the weeds and flowers, would be decidedly vulgar, and show a want of refinement.—Walking a mile or two every day would be an outrageous imposition—father or brother must "harness up." The young lady must sit in the rocking-chair and read silly novels, exciting the imagination at the expense of the heart and health—attend balls, and "dance all night" for exercise, feed on pickles, sweet cake, and other indigestible trash, when the stomach should be at rest, and the whole body enjoying "nature's sweet restorer, balmy sleep." Young women thus grow up with impaired constitutions; and when active life with its cares and responsibilities come upon them, they are unequal to the task, fall victims to their own and their parent's folly, and either drag out a miserable life, or fill an early grave. "The delicate and feeble appearance of many American women," says Miss Beecher, "is chiefly owing to the little use they make of their muscles. Many a pale, puny, shad-shaped girl, would have become a plump, rosy, well-formed person, if half the exercise afforded to her brothers in the open air had been secured to her during childhood and youth."

The remedy, then, is exercise, and exercise out-of-doors. The health of children must not be sacrificed to books. No over-anxiety of the parent must be permitted to bring on those very evils the parent dreads. Children love exercise—it is natural for them, and necessary to the development of their bodies—and they will have it, if not prevented by their parents. But exercise must not end with childhood. Our young ladies must walk, ride, and work in the open air. Never mind a little tanning in the sun and wind—health and comfort are cheaply purchased even at the expense of a fair complexion. By riding, we don't mean riding in a spring buggy with a cushioned seat—but horseback. Saddle the horse yourself, young woman, and ride three or four miles every day. Or you can ramble through the woods and over the farm and fences. And have a garden—cultivate roses and carnations, and phloxes, and shrubs—and take good care of them. It will afford you exercise and pleasure; it will teach you more of nature than a thousand novels

Mothers, learn your children to love gardening—allot them a patch for their own garden—get them such little implements as will entice them to work. It will do more to save them from years of suffering than all the drugs and sugar-pills in the universe.

THE WIFE'S INFLUENCE.

A woman has her husband's fortune in her power, because she may, as she pleases conform to his circumstance. This is her first duty, and it ought to be her pride. The passion for luxury or display ought not for a moment to tempt her to deviate in the least from this line of conduct. She will find her own respectability and the esteem of others in it. Any other course is wretchedness itself, and inevitably leads to ruin.—Nothing can be more miserable than the struggle to "keep up appearances." If it could succeed, it would cost more than it is worth; as it never can, its failure involves the deepest mortification. Some of the sublimest exhibition of human virtue have been made by women, who have been precipitated suddenly from wealth and splendor to absolute want.

Then a man's fortunes, in a manner, are in the hands of his wife, inasmuch as his own power of exertion depends on her. All his moral strength is inconceivably increased by her sympathy, her counsel, her aid. She can aid him immensely by relieving him of every household care which she is capable of taking upon herself. His own employments are usually such as to require his whole time and his whole mind. A good wife will never suffer her husband's attention to be distracted by details to which her own time and talents are adequate.

If she be prompted by true affection and good sense, she will perceive when his spirits are borne down and overwhelmed. She of all human beings, can best minister to its needs. For the sick soul her nursing is quite as sovereign as for corporeal ill. If it be weary, in her asssduisy it finds repose and refreshment. If it be harrassed and worn to morbid irritability, let her gentle tones hover over it with a soothing more potent than the most exquisite music. If every enterprise be dead, and hope itself almost extinguished, her patience and fortitude have a power to rekindle them in the heart and he again goes forth to renew the encounter with the toils and troubles of life.

How to Improve the Heart.—Never lose an opportunity of seeing anything beautiful. Beauty is God's handwriting, a wayside sacrament. Welcome it in every fair face, every fair sky, every fair flower, and thank Him for it, the fountain of all loveliness, and drink it in, simply and earnestly, with all your eyes. 'Tis a charmed draught, a cup of blessing.

"THE EQUINOCTIAL STORM" EXPLODED.

"Prove all things—hold fast to that which is good."

Among the many errors that have been allowed almost undisturbed possession of the public mind, perhaps for centuries past, few are more common than the belief in equinoctial storms: and as we shall presently show, few notions are more destitute of support either from science or actual observation. Our attention has been called to this subject for eight or ten years past, owing to the occurrence of the agricultural fairs in the month of September, and the objection which would invariably be made against holding a fair during the week when the equinox would occur, on account of the supposed probability of bad weather.—But on observation, we have noticed that from the 20th to the last of September was, if any thing, more commonly fine weather than any other period; hence we discarded the popular doctrine of equinoctial storms.

At the meeting of the Board of Agriculture in Cincinnati last spring—the time for the State Fair being under discussion—this "equinoctial storm" theory was strongly defended; and knowing that Dr. Ray, of Woodward College, had for many years kept an exact daily Record of the weather, we have requested him to favor us with the result of his observations upon this point. The following communication is his answer, and we think it is conclusive; but if any important facts or arguments are adduced on the other side, the Doctor has the daily records and will give them:

Equinoctial Storms.—Is the weather, at that period of the year denominated the Autumnal Exuinox, [Sep. 23,] generally stormy, or of a more unfavorable character than at other periods?

This question is proposed in reference to the Northern and middle States; though what is true in regard to them, cannot vary materially in the Southern States.

In reply to this question, it may be observed, that popular opinion has long since decided in the affirmative. The time when the "sun crosses the line" is, in the estimation of numerous individuals, a very important astronomical event, and quite worthy of being celebrated with storms of wind and rain, and a general disturbance of the atmosphere.

The "line" [equator] is also regarded as some great physical development, like the mountain ridge, encircling the earth. In regard to popular opinion, it is only necessary to observe that it is a very unsafe guide, both with regard to the existence of facts, and the causes of phenomena, but especially the latter.—There are, however, two methods of answering the question, both of which we shall briefly notice.

First. Is there anything at the period of the equinox, in the particular relation of the great operating causes, that has a tendency to produce an unusual state of the weather? In reply to this it may be said, we have the equinox. And pray, what constitutes the equinox? Simply the fact that the sun has no declination, or for a moment of time [and only a moment] is vertical at some point of the imaginary line on the earth's surface, called the equator. But the sun is always vertical to some point on the earth's surface; can it then be supposed that the mere fact of its being vertical at a certain point equally distant from the poles, shall have such a due influence as to conjure up vapors, storms, winds and rain, as if nature designed, by raising a great commotion in the atmosphere, to celebrate one astronomical period, while others, equally important, so far as the earth is concerned, are permitted to pass by unheeded and unsignalized? Thus the periods when the earth passes through the aphelion and perihelion points have an important relation to the climate of the earth, and to the seasons of the year; but as they are not generally so well known as the period of the equinox, they have not been furnished with storms to celebrate their advents.

Second. What is the testimony of recorded observations? To this I reply, no writer on meteorology that I have consulted, makes any mention of such a phenomenon as in common parlance is denominated an equinoctial storm. I refer particularly to Kaemtz, Daniel, Howard, and Ferry, all of whom in their respective works treat of the subjects of rain, winds, and storms. One of these [Kaemtz] furnishes tables of the number of storms occurring at different places during each month of the year; but at no place did the greatest number of storms occur either in September or October. Now it can hardly be supposed, if such a phenomenon as an equinoctial storm existed, that it would have entirely escaped the observation of men whose lives were devoted to the collection of facts pertaining to the science of meteorology, and reasoning from them.

My own observations extend through a period of 15 years, but the records of 1835, except the abstract, are not now to be found, so that I can only refer to them since that period. During this period of fourteen years, ten of these equinoctial days were either clear, or fair and pleasant days; while two, though partly clear, were more than one half cloudy; and two only were entirely cloudy and partly rainy.

But those who maintain that there is usually a "bad spell of weather" at or near the equinox, may wish to know how many such spells happen within some given period, of which the equinox was the middle. For the satisfaction of such I would state, that by taking a period of one month, that is, about two weeks before and two weeks after the equinox, we have had five bad spells of weather, while on nine of the years there was no weather that could be called unpleasant

From these data it would seem, that if a great public meeting were to be held in the month of September, it would be advisable to fix it for the 23d—the very day of the equinox!—as the probabilities are very strong [6-7] that it would be a dry day, and pretty strong [5-7] that it would be fair, that is, more than half clear; while the probability that it would be wet is very small [1-7.]

JOSEPH RAY.

WOODWARD COL., Cin., Nov. 1849.

Ohio Cultivator.

ARTIFICIAL MAHOGANY.—The following method of giving any species of wood, of close grain, the appearance of mahogany in texture, density and polish, is practiced in France, with such success that the best judges are incapable of distinguishing between the imitation and the mahogany. The surface is first planed smooth, and the wood is then rubbed with a solution of nitrous acid. One ounce of dragon's blood is dissolved in nearly a pint of spirits of wine; this and one third of an ounce of carbonate of soda, are then to be mixed together, and filtered, and the liquid in this thin state, is to be laid on with a soft brush. This process is to be repeated, and in a short interval afterward the wood possesses the external appearance of mahogany. When the polish diminishes in brilliancy, it may be restored by the use of a little drawn linseed oil.

STEEL BY ELECTRICITY.—Dr. Wall, of London, has discovered and patented a process for manufacturing steel and iron through the agency of electricity, which promises to cheapen immensely the cost of their production, and at the same time improve the quality of the metal. It has been tested at several of the leading iron furnaces of Maryland and Virginia, with the most satisfactory results.

Editors' Notices &c.

ERRATA.—In Classes of Live Stock and Pigs for "1849" read "1850."

APPOINTMENT OF SEEDSMAN TO THE PROVINCIAL ASSOCIATION.—At the recent meeting of the Agricultural Association of Upper Canada, Mr. James Fleming, of the Yonge Street Nursery, in this city, was appointed Seedsman to this Society. We think this is a judicious arrangement. Mr. Fleming is in the habit of importing directly from a respectable House in London, and will attend to any special orders from members who may wish to obtain any rare seeds &c, for a small remuneration. He will likewise purchase from farmers timothy, clover, and other agricultural seed raised in the province, and execute all orders with which he may be entrusted. A portion of Mr. Flemings's spring importation has already arrived through New York. In examining it we noticed several novelties, which it is of importance should be fairly tried in order to test their suitability to this country. Garden flowers and agricultural seeds of a great number of varieties can be promptly supplied.

ADVERTIZING.—Our new arrangements do not admit of advertisements. We shall always, however, be happy to give publicity to any information or facts possessing a general interest that we may receive from agricultural societies, gardeners, nursery men, &c.

NEW YORK STATE AGRICULTURAL SOCIETY.—The next annual Exhibition of this society will take place at Albany during the first week of September.

THE COUNTY OF YORK AGRICULTURAL SOCIETY.

This Society held its general meeting at the Court House on the usual day, when the following gentlemen were duly elected as officers for the current year:

President,—E .W. Thomson, Esq.

Vice-Presidents,—W. B. Jarvis, T. Neil, F. Jakes, and R. L. Denison, Esqrs.

Directors,—A. Shaw, W. McDougall, G. Buckland, J. Snyder, J. Watson, J. Bates, J. Scott, J. B. Wheeler, N. Davis, D, Smyllie, R. McNair, J. H. Price, E. Snider, R. C. Smith, and Dr. Clark, Esqrs.

Secretaries,—G. Wells, and W. B. Crew.

Treasurer,—W. Atkinson, Esq.

The meeting was adjourned until Wednesday the 13th March, when it was determined that the Spring fair should be held on Wednesday the 8th May next, in the city of Toronto, on the open space, adjoining the Jail, and that in consequence of the flourishing state of the society's funds, the sum of £150 should be awarded for prizes at the exhibition, and the sum of £30 to aid the funds of the Provincial Association.

A Committee of three gentlemen were appointed at the meeting to confer with the Mayor and Corporation as to the propriety of establishing in the city periodical cattle fairs.

EASTERN TOWNSHIPS, L. C.—We are glad to find the farmers in townships and places where our paper has not heretofore had much circulation, awaking to the importance of improvement in the science as well as the practice of agriculture. It is a *sure* sign of progress when the agricultural class begin to read and make enquiry on the subject of their *own art*. Several new orders for the *Agriculturist* have been sent in from Lower Canada, particularly from the eastern townships. J. R. Lambly Esq., of Leeds, L. C., who was the only subscriber in that vicinity last year, sends us an order this year for 44 copies for the Society.—After speaking of the alacrity with which the members responded to the resolution of the Committee to furnish a copy of the Agriculturist to each member, on paying 1s. 3d. extra, he says:—

"Our winter show was held on the 28th of last month, in the township of Inverness, and equalled our highest expectations. The show of wheat could not be surpassed in Canada; we speak advisedly, as we have seen wheat from all parts, at home and abroad, but the wheat shown at our last exhibition was equal to the best, and very far exceeded the average of wheat raised on this continent. The other grains exhibited were also very good. There was also a good display of vegetables. The fabrics, for the newness of the country, were of a very superior description. Altogether, sirs, for a young society, the '*Montre*' was very good, and as to know and be known, even as a community, is sometimes servicable, a brief notice of our agricultural exhibition, and our existence as a society, in this remote locality, would gratify us, and at the same time show to our fellow countrymen that we are alive to our best interests as *farmers*."

THE MECHANICS INSTITUTE of this City will hold its Annual Exhibition in September next, commencing one week after the Provincial Fair. Some very respectable prizes are offered for specimens of art. A Gold Medal, of the value of £12 10s. will be given by His Excellency the Governor General, for the best specimen combining Ingenuity and Mechanical Skill. For the second best—a work of art, value £5 will be given by the Institute. Best specimen of Decorative Art, manufactured in the Province, combining taste and original design, will obtain a prize, being a work of art, valued at £4. Various other prizes are offered, and a discretionary power vested in the Committee to award prizes for superior specimens of art or manufacture not mentioned in the published list.

R. D. WADSWORTH, Esq., the well known Lecturer on Temperance, is authorized to transact any business connected with the *Agriculturist* in that part of the Province west of Toronto. Mr. W. will receive subscriptions that may be due for 1848 and 1849, and as several Agents who travelled for us in those years have never settled their accounts, we hope such persons as may not have paid their subscriptions, will take this opportunity of paying Mr. Wadsworth, if he pass through their neighborhood. *Agricultural Societies* can give their orders for the paper to Mr. W., if not previously ordered. Mr. W. will also take subscriptions for the present year on the terms stated in our Prospectus.

TORONTO HORTICULTURAL SOCIETY.—We understand that arrangements are being made for increasing the usefulness and attractions of this Society, during the forthcoming season; and we hope the Toronto public will extend to the Managers a prompt and liberal support.

☞ The name of Mr. Sheriff Ruttan was accidentally omitted in the printed resolution, inserted in our last, relative to the Committee for drafting new statutes for Agricultural Societies, &c.

MARKETS, &c.—The state of the market continues much the same as when reported last; business contracted, and prices stationary. As the country roads are getting bad, and the weather of late having been very stormy and changeable, the deliveries of grain have been inconsiderable. The prospect of an early spring is much less encouraging now than it was a week since. The present cold winterly weather, however, will probably prove advantageous in the end, particularly to fruit trees which are, when the tender buds and blossoms become very early developed, so peculiarly liable in this climate to the injurious effect of frost.

D BUCHAN, PRINTER, PIONEER OFFICE, TORONTO.

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, } EDITOR.
WILLIAM McDOUGALL, } ASSISTANT EDITOR

VOL. II. TORONTO, MAY, 1850. No. 5.

The Canadian Agriculturist,

Published Monthly, at Toronto, C. W.

TERMS.

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WORK TO BE DONE.

We proceed to offer a few practical suggestions to our Agricultural readers in addition to those contained in the last number.

The season, contrary to general expectation a few weeks since, promises to be a late one.—At the time we are writing (April 18) scarcely any of the characteristics of Spring are visible; vegetation has not awakened from its wintry slumbers, and the severe frosts which we have experienced for some time past, with the frozen drifts of snow in the more backward and elevated situations, have prevented the all important operations of the plough. The sudden freshet experienced in the beginning of this month throughout this Province has not only done immense damage to bridges, roads and other public and private works; but in many cases it must have been greatly injurious to farmers, who will have their energies taxed to their utmost when the season for active operations fully arrives.

Before this sheet reaches our readers we hope to experience a more genial temperature, and that the main operations of the farm, such as ploughing and sowing will have fairly commenced. In such a season as the present, when the ordinary horse-power on most farms, is very inadequate to immediate and pressing wants,—every thing relative to the preparation of the soil and sowing the seed, having to be done in so short a time, what an advantage would it be to the farmers, of any considerable extent to possess that invaluable and economical implement, the *Cultivator*. By this we do not mean that little convenient implement usually termed a horse-hoe, which is so admirably adapted for the cultivation of growing crops planted in rows, but something approaching the large and heavy implement known in the old country as grub-

bers or Cultivators, requiring the draft of three or four horses. Such an implement would thoroughly pulverize even the heaviest clays, to the depth of ten or twelve inches, and still deeper if desired, and several acres could be gone over in a single day. Thus *a deep land bed* might be readily obtained, which is an important object in this climate for all kinds of crops, and one that we might say is essential to the success of root culture. Heavy soils ploughed in the fall, and so drained or furrowed as not to allow of the stagnation of water, are immensely benefitted by exposure and frosts, and a good Cultivator will easily bring them into a fine and deep tilth for Spring crops, without an additional ploughing. Light sandy soils are in general but little benefitted by fall ploughing, an operation that may be deferred, without any serious disadvantage till Spring.

Wheat that is thin and weakly should receive as soon as vegetation becomes active, a top-dressing of manure; wood ashes and soot, with a portion of gypsum are recommended. Potash, soda (Nitrates) and Guano are used in the old countries with gread advantage; but the price of these articles precludes their general use, at least for the present, in this country. We are of opinion,however, that an occasional application of artificial manures for *special purposes,*—as when a crop is in immediate want of one or two ingredients essential to its growth will even in Canada, frequently pay expences and bear a profit. In the selection and application of these kind of manures, however, both experience and some degree even of scientific knowledge are necessary. When a top-dressing is given to wheat, and clover is sown, a slight harrowing is much to be recommended, finished by the application of the roller. Harrowing wheat when done with judgment and care is a beneficial practice, whether seeds or manure are sown or not.

The preparation of the land for Potatoes, and other root crops must be proceeded with without delay, as it is of importance that most kinds of vegetables should be sown in good season.—Although the potato is yet far from being restored to its former healthy condition, and the cause of its disease continues wrapt in obscurity; still extended observation and scientific investigation, have suggested several valuable and practical hints to the cultivator of this important vegetable. In all countries, and with all varieties, *early planting* has been found beneficial; the late crops having suffered the most from the ravages of disease. We should consider it hazardous to recommend to our readers to enter upon an extensive cultivation of this very uncertain plant; yet by the prudential observance of a few simple conditions upon a comparatively small scale, a tolerable degree of success may be, in most instances, realized.—Select healthy tubers, plant early in a soil that is dry and well cultivated, and moderately rich in organic substances. Strong animal manures should not be applied, at least but very sparingly; lime or wood ashes, would be far preferable.

The ground for Barley requires to be of good natural fertility, or well manured, and should receive the best cultivation. Drilling the seed, or ribbing, will be found advantageous with this as with most other kinds of grain. From two and a half to three bushels of seed to the acre, provided it be clean and good, will be sufficient, and should be sown as early as possible, but not exposed to the risk of frosts.

Such varieties of Indian Corn as are suited to this northern climate might be more extensively cultivated with advantage both for grain and fodder. The land for this crop should be dry, warm and rich; and the cultivation liberal. It is useless to attempt to grow maize, on cold backward soils; but much of our rich, wet land abounding in organic matter might, if thoroughly drained, be profitably brought under the culture of this crop. It is an excellent plan as soon as the leaves have made their appearance to sprinkle a little stimulating manure over the hill, such as gypsum, ashes, &c., with a view to push forward the young plants at this early stage beyond the depredations of insects, and thereby also ensuring an earlier harvest; which is an object in our climate of the very greatest importance.

As to Turnips, Mangel Wurzel, Carrots, &c., all that we can now say is, that no prudential farmer ought to be without them. In these matters we recommend *a thorough and liberal cultivation on a small scale,* as much safer and far more profitable, than an imperfect and slovenly treatment of a large breadth. One acre in root crops well managed, will yield a larger produce than treble that extent, under the treatment that is commonly practiced.

As the season is now far advanced, those of our readers who are anxious to secure a liberal store of food, both in hay and roots for carrying their stock through the next winter, must not lose a single moment in completing the necessary preparations. Meadows kept in good condition by liberal seeding and manuring, and suitable soils selected for root crops subjected to a system of efficient management, will generally enable the persevering farmer, notwith-

standing the length and usual severity of our Canadian winters, to make ample provision for sustaining his live stock, in a comfortable and improving condition.

ON PRACTICAL FARMING.

[The following article from the pen of a farmer in Elizabethtown, was originally addressed to the Directors of the *Johnstown Agricultural Society*, who have kindly permitted us to publish it.]

TILLAGE FARMS

Are the most profitable to the community, because they give employment to the greatest number of persons, and are the most productive of human sustenance, for although the quantity of fodder used for the support of the cattle employed in cultivating them, must be deducted from their produce, and the remainder is all that is available to man, yet that will exceed the largest amount of human food that can be obtained from an equal number of acres of the same soil, under pasture or meadow. In a private point of view, however, grass land, when of good quality, is of the greatest value, because it produces an abundant crop without the expense of cultivation. It is, also, for that reason, a more secure investment to the owner; and, therefore, unless seduced by the very high price of grain, they rarely allow such to be broken up. But in point of convenience, of general profit, and of pleasure, a farm composed of both arable and pasture is to be preferred to one of either alone.

It is still an undecided question whether farms of mixed soil are preferable to those of one equal quality. The advocate of the latter urge advantages attendant on a uniform system, fewer implements, and the consequent greater ease and economy of management; while the supporters of the former insist on their superiority in affording a wider range for experiments, a greater variety of crops and seasons; and a better division of labor and hazard; which remarks apply with peculiar force to stiff clays, on which the teams must remain idle during many days when they might be employed on land of more various quality. A bad soil it has been justly observed, is an exhaustless source of amusement to the possessor; an untoward one, the plague of autumn—the pest of his winters—and the never failing curse of spring. To which it may be added, that bad land is dear at any price. By bad land, however, is not meant poor land, from much of which, when of a kindly nature, money is to be made under proper management; but cold and wet clay and gravelly soils should be carefully avoided; for although subject to heavy and constant expenses for draining, and of a difficult tillage, they are uncertain in their returns, and only fit to be laid down to grass. Rich soils are scarce, and not easily obtained, but a sound hazel loam, though not of the first quality, yet if deep enough not to be easily affected by drought, and both dry and friable enough to work kindly in the early part of spring, will seldom disappoint an active and intelligent farmer.

The choice of a farm is an object of the deepest importance to the man who depends on it for subsistence; but it is only rarely that he can select such a one as would prove in all respects desirable. Yet, although in most instances the competition for land may compel him to take what he can get, rather than what he would choose, there are still considerations which no one of prudence can overlook. The nature of the market, the cost of essential improvements, and the price of labor, are each deserving of serious reflections; in the aggregate they determine the requisite amount of that which demands the most especial attention, namely:—

CAPITAL.

Most farmers are anxious for large farms, and many are thus betrayed into the error of purchasing a greater quantity of land than they have the means of managing to advantage; some in the delusive hope of acquiring those means by future saving; others from the vanity of holding more land than their neighbors.—Hence arises deficiencies of stock, imperfect tillage, and scanty crops, all the consequent train of evils, arrears, wages ill-paid, and debts unsatisfied, distress, and final ruin in many cases. Where, as he who is prudently content to commence only with such a number of acres as he has the power of cultivating with proper effect, is certain of obtaining the full return from the soil; while, not being burdened with more land than he can profitably cultivate, keeps his engagements within his means, and thus, while enjoying present ease of mind, he lays the surest foundation for his future prosperity.

There is no mistake more common, nor more injurious than that of supposing the more land a man holds, the greater must be his profits, for the profit does not arise from the land itself, but from the manner of using it; the best soil may be made unproductive while the poor may be rendered profitable by the opposite course; but without sufficient capital no land can be properly cultivated. There is nothing to which capital can be applied with greater certainty of

a fair return for its liberal expenditure when correctly employed, than land; but on the other hand, there is nothing more ruinous when the capital is either insufficient or injudiciously laid out. In fact—assuming always that the expenditure be directed with judgement, it will be found that the profit upon the outlay increases more than in proportion to the amount of expenditure. It therefore behoves a man to weigh well the charges with his means, and not allow himself to be seduced by an ideal prospect of gain, into the imprudence of trying to cultivate a larger farm than his capital will enable him to manage with the spirit necessary to insure success.

Much larger capital than was formerly required has become indispensable since the general adoption of the alternate system of husbandry; for the foundation of that system, and all good farming, is the support of more live stock than possible when the land was brought round to the reproduction of wheat by means of repeated fallows, instead of green crops. The charges, being then confined to those incidental to mere tillage, were comparatively light; whereas now there are arable farms without an acre of pasture in England. By soiling, more stock is kept and more manure is made. But the produce is proportionately larger and more grain is raised or meat produced. Of two farmers, each possessing the same quantity of land, and devoting the same proportion of it to grain, he who can support the most live stock, will not only realize the customary profit on that stock, but will also grow the most grain. The farmer who has the means, as well as the discernment, to make some of the various branches of grazing or the dairy, an essential part of his business, and thus nurses a proportion of his land, preserves the tillage in constant heart with the additional manure; and although the gross amount of grain may be less than if more ground were under the plough, yet the profit will be greater and the deficiency will be more than made up by the supply of cheese and butter, and of flesh. He also divides his risk; so that, in the event of an unfavorable harvest, the loss upon his crops will probably be reimbursed by the profit on his cattle. It is a common observation, that grazing and dairying are the most regular profit, to which it may be added that the bane of all necessitous farmers, and the ruin of land are being under stocked and over cropped.

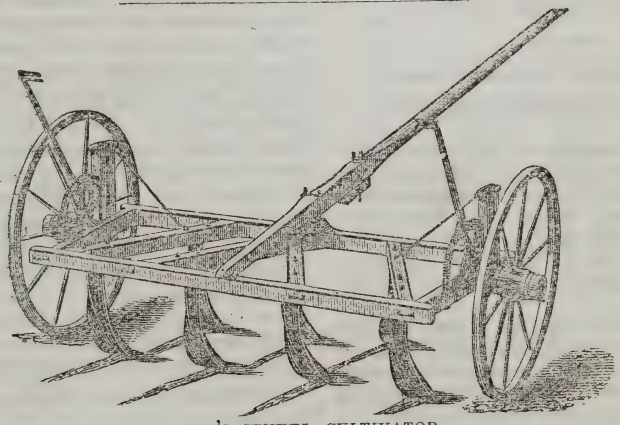
By the *Old Husbandry* I mean the prevailing system of the country which is progressively deteriorating our lands lessening their products, and sinking our farmers to ruin; a system which neither makes the land dry, nor keeps it rich, and which tills and mows, and pastures the same fields till the plough land is worn out, grasses in the meadow land run out, and the pastures over grown with bushes and noisome weeds and mosses. I call it an exhausting system, for it not only exhausts the soil, but the purse of the cultivator. By the new husbandry I mean the system which has enriched England, and which is now enriching every farmer of our country where it has been fully adopted; the system of draining, manuring, alternating of clover and roots with grain, &c., and of blending cattle with grain husbandry. I call this the *augmenting* system, because it augments, or at least preserves the fertility of the soil, and secures profits of agricultural labor. It is affirmed by intelligent practical men, that under this system more cattle can be fed and fattened, upon the roots and straw of the tillage land than can be fed and fattened upon a like number of acres. kept permanently in meadow and pasture, leaving the grain as extra profit. The new system prevailed long in Flanders, ere it was introduced into Great Britain, and it is perhaps no where now carried to higher perfection than in Scotland. The Scotch excel in their system of draining, and perhaps are behind few in the improvement of their stock, and judicious alternation of their crops. Grass grounds are there almost invariably broken up the second or third year after seeding.

PREPARATION FOR, AND ROTATION OF CROPS,

First. If land is wet, either flat or rolling, it must be drained, either by under-ground or open drains, in order to bring it into a proper state for the rotation of crops. If land should be spouty or springy, and the soil deep it must be drained by under drains to ensure success to the agriculturist, but flat and shallow soils may be drained by open ones. First place, divide your farm into say six large fields and as many small ones as you think necessary near your house. Take No. 1, plough in the fall or autumn, in the spring sow peas and oats, potatoes and root crops; this breaks the sward. The second year summer fallow, if the land is thistly plough deep the beginning of June, harrow when the land is dry, the weather hot, and not let a thistle show an inch above ground. Plough the beginning of July, and again the first of August and drag thoroughly, then it will be fit for the seed furrow, or ridge, which should run North to South, and should be from 8 to 12 feet wide; when ridges run East and

West, the one half shades the other half; the North side is shaded so that it keeps frozen two or three days longer in spring than when running from North and South. Manure must be put on the fallow, if it is free from foul seed, it should be put on before the first ploughing. If foul, by the common practice of throwing out with the chaff all foul seed was not removed, it must be heaped and fermented, so as to kill all foul seed, and applied the last time of ploughing. In regard to ploughing for the seed furrow it should be ribbed so that the seed will fall in rows or drills, the advantage of this is the roots stand combined together which resist the frost in the spring, which is so apt to heave out the wheat. Another is the air circulates between rows and the crop is not so apt or liable to rust. The quantity of wheat sown varies from one and a half to two bushels per acre; if fall wheat, should be sown the last days of August or beginning of September. However I think that one and a half bushels is sufficient on good land, the seed should be steeped and prepared as follows:—2 oz. of blue vitriol to the bushel, dissolved in sufficient water to wet the wheat, put into a cask and soaked four or six hours; then dry with new lime by sifting three or four quarts to the bushel. Another way is to lay down your wheat on a barn floor, then wet the wheat perfectly with water, then sift four quarts new lime upon it, stir it well, in six hours wet it again, and stir it well, let it lay twelve hours, and do the same in six hours after occupying in all twenty-four hours. In either way I am not troubled with smut; and if our farmers would mind the foregoing remarks and sow *clean seed*, we should not hear so much complaint by the farmers, that the buyers knock off two or three pounds for chess to the bushel, and the cry that wheat turns to chess, would not be advocated by so many as it is at the present day. The quantity of grass seed to the acre, 8 quarts and 4 lbs. of clover seed in the spring, some time in April if dry enough, a roller should pass over to press the seed into the ground, some prefer a harrow with wooden teeth, with one horse. I think a harrow is quite as good on account that the roller packs the land, if wet, quite hard, and if dry weather follows it is injurious to the crop. Cut the grass fourth and fifth years and sixth year, pasture. After this summer fallows may be dispensed with if properly subdued, if not go through the same process again untill wild grasses and weeds are totally destroyed. The above applies to heavy clay soils and vegetable mould or wheat soil and grass land.

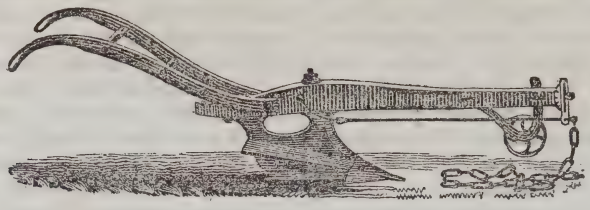
(*To be continued.*)



IDE'S WHEEL CULTIVATOR.

This is an implement of an improved kind in the *Cultivator* line. We heard parties at the New York State Fair, who had used this implement, speak highly of its merits. It will be seen by the cut that there is a contrivance for raising or lowering the frame to which the iron cultivators are fastened. By this means the teeth may be set to any depth required.

The use of the Cultivator instead of the harrow would often prove a decided advantage. Where fall ploughing is practised and spring crops sown without a second ploughing, as is frequently done in Canada, this Cultivator would answer a good purpose in preparing the soil for seed. The rapidity with which the work could be done would in an economical point of view warrant the expense of procuring the Cultivator. We are not aware of the existence of a manufactory in Canada at which these implements are made. They may be obtained at Rochester, New York, at a very reasonable price.



SUB-SOIL PLOUGH.

In our last number we published a short article on sub-soiling, which we would advise the reader to turn to a second time. A great deal has been written on the subject, but the article in question contains all the principles and some of the practice necessary to elucidate it. In some parts of the State of New York the attention of the farmers has been aroused to the great advantage to be derived from a judicious use of the Sub-soil Plough, and thousands are being manufactured and sold. The above represents a kind in common use, which may be made for $12 or $15 each. As the reader will see, the object of a Sub-soil Plough is not to turn the clay or *pan* upon the surface, but to loosen it, to allow air and moisture to prenetrate, and thus secure a deep, friable soil which must in all cases be an advantage. Try it, ye whose soils are not already too rich. Try it.

PRICE OF BUTTER IN THE WEST INDIES.

To the Editors of the Canadian Agriculturist.

GENTLEMEN—

In looking over some files of *DeCordova's Mercantile Intelligencer* (Jamaica,) I perceive that *Halifax* Butter usually commands there a higher price than *American*. Thus, while *Irish* brings 9½d. @ 10½d., *Halifax* figures at 8d.@8½d. and *American* only 6d.@8d. per lb. These prices are, however, in sterling money which is the Jamai currency.

Undeniable as it is, that the climate of Nova Scotia is well adapted for dairy farming, I should like to know whether *our farmers*, could not make prices like the above available for profit, by paying attention to the making, curing and preparing butter?

Perhaps under our ordinary prices, good butter meets a more profitable market at home. But, Sirs, why have we so much bad butter, which is both discreditable and profitless to the producer?

I remain, Gentlemen,
Your obedient servant,

* * *

[We quite agree with our Correspondent that the farmers of Upper Canada should give more attention to the important subject of the Dairy. At present, good butter commands a high price in the Toronto market, and very little that is *really good* can be obtained at any price. If the price of grain for the future should rule low —which we think will be the case—our farmers will be compelled to resort more to dairy products; and with good management, both cheese and butter may be produced in Canada of the best quality, and in quantities sufficient to supply all home demands, with an annually increasing surplus for exportation.]

Spirit of the Agricultural Press.

IMPROVEMENT OF CLAY LANDS.

The change that has been wrought in the wet, tenacious clay soils of England and Scotland, by means of thorough draining, and trench or sub-soil ploughing is truly marvellous. These improvements have been going on most rapidly within the last dozen years, and the produce in most instances has been doubled, in some trebled, and even quadrupled. Too much praise cannot be given to Mr. Smith, of Deanston, who ranks first among those enterprising individuals, that first wakened up the public mind to the importance and practicability of these improvements. Although in Canada, an expenditure so large as these operations cost in the old country, is not required, nor would it be profitable, yet much might be done,—and we think *must be done*,—in this direction, before our Agriculture can settle down under any intelligable system of correct principles, and fully remunerate our most intelligent and spirited cultivators.

AGRICULTURAL EDUCATION.

We are happy to learn that at the College of *Chambly* measures are about to be adopted to ensure Scientific Agricultural Education. A farm of 54 acres attached to the College, will be cultivated on the best principles, and Agricultural Chemistry will be carefully studied. This arrangement we understand, is to take place from the first of May, 1850.—*Montreal Pilot.*

DEEP PLOUGHING.

In a recent number of the *Michigan Farmer* it is stated, that two adjoining fields were ploughed, one *four inches deep*, the other *eight;* the first gave only *seven* bushels of wheat to the acre, the last *thirty-two!* It is possible that other causes might, in this instance, have combined to produce this result; still there can be no doubt whatever that *deep* cultivation, particularly in climates subject to summer droughts, has a wonderful influence on the amount of the crop. We have seen ourselves similar instances to the above.

IMPORTATION OF MANURES INTO GREAT BRITAIN

It is calculated that the amount of Guano consumed in England and Scotland, amounts to upwards of two hundred thousand tons a year, and of Bones an equal quantity; which at a very moderate calculation must cost upwards of three millions of pounds sterling.

PROFESSOR JOHNSTON'S LECTURES.

We have seen as yet, only the first lecture of the interesting course which Professor Johnston recently delivered before the members of the New York State Agricultural Society at Albany. The report, which we find in *Moore's Rural New Yorker*, is very copious, and appears to present in many parts the very words that were used by the learned Professor. We shall present our readers, from time to time, with such extracts as our space will admit. The first lecture is on *the relations of Physical Geography to practical Agriculture.* The following remarks on the practical bearings of general science on the farmer's pursuits, we recommend to the attention of our Agricultural readers.

It will be impossible for me to fill up a single one of the numerous outlines I shall have occasion to present to you. My purpose will be to impress on you the great breadth of existing knowledge which bears on the farmer's art. And first, to show the character, the true practical position which his own art occupies among human pursuits. And in the second place, to satisfy men engaged in other occupations, that whatever farmers, as a class, may be, in any country, at any time, they ought not, either for their own individual interest or for the interest of the country to which they belong, to be less intelligent, or less instructed in general and special knowledge, than other classes of the community are.

Such a course of lectures is likely to be useful at the present time; in the first place, because of the position which according to my judgment practical agriculture now occupies in this State; and secondly, because of the measures which the State Legislature, during the present session, are likely to take—I hope will take—in order to improve that condition.

I shall also make it one of my objects to show that natural science has not only a direct money bearing on the pockets and property of the farmer, but opens up also large views of the natural capabilities of countries, and of the relations of these capabilities to the comfort and welfare of man: which are not only interesting in themselves, but such as belong to statesmen to become familiar with.

INFLUENCE OF LATITUDE ON VEGETATION.

You know, that if you pass from the southern extreme of this large country northwards you pass over different climates, so to speak; you pass over different parts of the earth, the latitude of which differs. As, for instance, in passing from the extreme south towards Maine, you know that you pass from the sugar and cotton-producing country, into the wheat-producing, and from this to the barley and oat-producing country—which description properly represents Maine—and that whatever is true along the sea-board, is true of all the interior portion, and of all America, from the extreme north to the extreme south; that latitude very materially modifies the kind of culture which it is necessary to adopt to make crops grow best.

On this I need not dwell; but to show you how very small differences in latitude most materially affect the growth of plants and crops, take one single example. The growth of sugar presents this example. According to the results of experience, the sugar cane will thrive where the mean temperature is from 64° to 67° of Fahrenheit. By mean temperature, I mean that which is obtained by averaging the temperature of every day in the year. If this temperature is from 64° to 67° in any given place, there is the place where the sugar cane will thrive. But though the sugar cane may thrive in such a latitude, and may be cultivated with success where the temperature ranges from 67 to 68°, still, it grows most luxuriantly, and yields the largest return at the least cost, where the mean annual temperature ranges from 70° to 77°. All other things being equal, the counties where the highest temperature prevails, are those where the sugar cane can be grown at the least cost, and drive all others out of the market.

The southern part of Spain, near the Straits of Gibraltar, presents the first degree of temperature spoken of. Here the sugar cane will thrive; and here was grown the first sugar that came into the market. The northern part of Africa has a temperature of the second grade—67° to 68, or nearly 70°. There, and in the Azores and the Canary Islands, the sugar cane was cultivated profitably; and there it was cultivated after southern Spain had ceased the culture. But in Jamaica, and other neighboring islands and countries, with which all are familiar, and where the temperature is about 77°, there the sugar cane grows most luxuriantly. But Cuba, and the northeastern part of Brazil, possess the most favourable temperature for the growth of the sugar cane. Thus the single circumstance of variety of temperature, depending on latitude, designates the places where the culture of sugar cane can be carried on most successfully.—All other things being the same, the cost of labor, the energy and enterprise of the people, the institutions of the country—all these conditions being equal—these two countries ought to drive every other country out of the sugar market of the world. But these conditions do not exist; and in other countries the energy of their population, and the effect of their institutions, come into play, and they may compete successfully even with those most favored by climate for the culture of sugar.

EFFECTS OF WATER ON CLIMATE.

The distribution of land and water, is a most important element in the determination of what crops will grow best in countries having the same latitude. You know that all along the sea-board of any one of these continents the climate differs from that of the interior;

and that the climate of the interior of the country differs from that of the sea-coast, whether of the Atlantic or Pacific side. So in the interior, bordering on those lakes at the north and west, you know that these bodies of water very much modify the climate. All who live near these lakes, know very well that the climate is very much modified by them, that is to say, that the capability of the land to produce certain crops, is modified by the position it occupies on the borders of these great inland seas. You know further, that the rivers of a country have a great influence, not only on the agricultural products of a country. Suppose the interior of this country were not intersected by these great rivers. Large rivers, are the great highways to market, and you know how little would be the profit to the farmer, who is distant from market, but for these rivers, though he might raise any quantity of grain.

ELEVATIONS—DELTAS, &c.

A most important point in physical geography, is the elevation of a place above the level of the sea. In various parts of the world there are great ridges of mountains all of which you are familiar with, as well as with the high table lands, which are to be found in many localities in Europe and America. All these mountain elevations, table lands, and plains, are characterized from certain circumstances, by peculiar agricultural products, entirely depending on physical conformation. These things are obvious and I pass over them.

But the effect of elevations is felt at a great distance. Two illustrations will suffice, on the first, I do not, I will merely name it. Prof. J. here pointed to the map of Europe—to the North sea—to Holland—to the Rhine, tracing its rise in the mountains of Switzerland, until it empties into the North sea, forming at its mouth, islands or deltas. All of you, he continued, recollect the fact, I shall hereafter advert to, of the peculiar unhealthiness of the deltas there.—Now, the character of these islands, and of the low country at the mouth of the Rhine, is determined very much by the nature of the elevations from which the water comes. What has been published of the Natural History of your own State, tells you how much the region through which the water flows, determines its quality, what it holds in solution, and how, when it reaches the sea this matter is deposited in the form of deltas and islands that occupy the mouths of rivers. This is an illustration of the effect of elevations to modify the character of a country, through which the rivers coming from them flow.

But a more striking illustration is presented in another part of the world. The river Nile rises in Abyssinia, flows through Nubia and Egypt into the Mediterranean, it is remarkable that the countries through which the Nile flows, are bounded by deserts.—These countries would have formed part of these great deserts, but for the waters of the Nile. This river rises in the Mountains the Moon, which are covered with snow at their summits. At certain seasons of the year, this snow melts, and swells the Nile to such a degree as to overflow and cover this vast plain, and fertilizes what would otherwise be barren, thus giving to the soil its capability to grow crops, and sustain a population which, in remote times, was very great. It is interesting to remark how, on apparently small things, which have their connection with distinct branches of human knowledge, the comfort and even existance of whole nations is found clearly and distinctly to depend.

Another remarkable phenomena, which has attracted the attention of physical geographers, is the large deltas formed at the mouths of great rivers, everywhere. Those at the mouth of the Mississippi, are familiar to you all. You know that these deltas found at the mouths of all great rivers, being formed of rich alluvial soils, are generally of an unhealthy character; unhealthy, because of their richness, and because of that unhealthy character in other situations, and under other circumstances, would not be cultivated at all. If time permitted, I might here show you, how much the agricultural prosperity of a country, not its capability, (for these deltas are capable of the highest degree of production,) but how much agricultural products depend on the healthy character of the climate. Farmers thrive in countries far more cold and severe, than others; because these cold and severe countries are mostly healthy. I am sure the hardy farmers, who cultivate the soil of New Brunswick, though they suffer from the extreme cold of the country, and complain of it, yet certainly enjoy far more happiness, so far as happiness depends on bodily health, than the inhabitants of other richer countries, such as Georgia, the Carolinas, Florida, and other southern States, which are far richer, and produce more, with far less labour. Hence, in all cases, in the temperate and colder climates, rural economy in general, attains much higher state of improvement, than in the richer and warmer, but less healthy countries.

There is one circumstance, in connection with these deltas, to which I will draw your attention, and only one; that is to say, of the lands at the mouths of rivers, and the character of the banks of the rivers themselves, when they are of great width, and when deposites have formed of alluvial soil, as is the case at the mouth of the Mississippi, and in other parts of the world. It is the character of these deposites to a higher elevation at the exterior than the interior part; and from this peculiar conformation—the depression of the interior parts—marshes and bogs, and bogs of peat marsh, in some localities are formed in these depressed portions.

DEPRESSIONS—RELATIVE LEVEL OF CASPIAN, BLACK AND DEAD SEA.

Among the most interesting phenomena of physical geography, are the depressions in certain parts of the world, compared with the level of the sea. I have spoken of elevations; but there are parts of the world, below the level of the sea, which notwithstanding, grow crops and nourish a large population.

I draw your attention to the Caspian Sea. This is a large body of water, from the edges of which, start plains in every direction.—This body of water is considerably below the level of the Black Sea and the Atlantic. If any circumstance should happen, by which a connection were formed between the Black Sea and the Caspian, the waters of the latter would be raised from 60 to 80 feet: a very great area of country would be submerged, and the borders of that sea greatly enlarged.

But the most remarkable case of this kind is presented in that part of the world with which we are familiar by name, and that is Palestine. In the interior of this country, is the Dead Sea, into which the river Jordan flows, through certain lakes, among them the Lake Tiberias. The Dead Sea is twelve hundred or thirteen hundred feet below the level of the Mediterranean. The Lake Tiberias is some five hundred feet below the level of that sea. If any circumstance should open a track or canal from the Mediterranean into the valey of the Dead Sea, its waters would rise twelve hundred feet and drown a large portion of the people of that country, with which our oldest and most sacred associations are connected.

I shall have occasion in a subsequent lecture, to draw your attention to the circumstance of there being certain parts of the world in which no rain ever falls, and certain other parts where the quantity of rain is very small. It is because the rain that falls in this country,

bordering on the Dead Sea and the Caspian, is no greater than the evaporation, that it remains as now, and has not been submerged long ago. With such a climate as you have, and as we have in Great Britain, where the rain that falls is greater than the evaporation, the population of those regions would have been annihilated by the rising waters.

SWAMPS AND WET LEVEL LAND.

There are large tracts of country, which are not either above or below the level of the sea; but which are so flat, that the water that falls, remains and stagnates. In this country, large tracts are rendered useless for agricultural purposes, by the extreme evenness of the surface. In New Brunswick, there are large tracts of this character, and which seem to defy agricultural improvement.

Again, there is a tract of country on the bay of Chaleurs, which though exceedingly flat, is naturally fitted to become as rich as some of the richest lands of Scotland, even those celebrated for their richness. It is so flat, that the water cannot escape. It is not a bog, or a swamp, but so wet that it cannot be cultivated profitably by the settlers.

Besides these phenomena, there are certain natural obstructions, which present themselves, in the course of rivers, and give rise to new conditions of the country bordering on them, which are more or less unfavorable to the growth of crops, but which farmers make profittable. In New Brunswick, there are many such—which may be called bogs, or swamps. In your own States, in Cayuga county, I believe chiefly on the outlet of Cayuga Lake, lies the Montezuma Marsh. I have not visited it myself, but am advised, that the marsh is formed by obstructions, which can only be removed by operations on a large scale, by which a partial drainage is effected, and thus the water enabled to flow from the lake, and thus a large extent of land, capable of being made of the most productive character, may be redeemed from barrenness. In other parts of your country, in Georgia, for instance, there are large swamps, and in Florida, there are what are called everglades; in regard to which, I am happy to hear, that steps are talked of for draining and reclaiming.

THE RHINE—FORMATION OF HOLLAND.

I promised to draw your attention to the Rhine. The Rhine, when it reaches the North of Europe, becomes loaded with mud to a great degree—not so great as the Mississippi; but there is the difference: the Rhine empties itself into a bay, where the waters from the north and south-west meet, and a drawing back takes place, and a precipitation of the earths in suspension goes on at the mouth of the river itself. Now, there was a time when these desposites took place without being heeded; when there were formed islands of small extent, the edges of which being raised above the rest, by the action of the waves and the current, formed strips of land on which trees and plants grew—the external being higher than the internal parts—thus forming a large extent of boggy, muddy, and sandy country, stretching from the mouth of the Rhine, north, to the Zuyder Zee; that is to say, forming the country now called Holland. By degrees, the fishermen settled on these little knolls, and fertility being soon known, the farmers were attracted thither, and by indomitable perseverance and enterprise, these and the adjacent lands were reclaimed by artificial works, and form what is now the limited province of Holland. I will not dwell on the history of this people; but you must see that the character of a people in such a country, formed originally by natural operations, and reduced to a habitable region by human perseverance and skill—you must see in the nature of the country, which must have moulded the character of the inhabitant, and formed the national character of its people—something of their remarkable characteristics. If time permitted, I might enter into details illustrative of these—the result of personal observation in that country—going over its dykes, sailing on its canals, and witnessing everywhere the triumphs of human power and art over extraordinary difficulties, a country which, from the beginning of the Christian era, has been subjected to continually repeated inundation. Records go back through a period of thirteen centuries, during which have been great inundations, which have broken up dykes, let out canals, overflowed cities, and drowned large numbers of people, once in seven years. For thirteen centuries, the Hollanders have been subjected, on an average once in seven years, to these inundations. I have thought, in going through that country, how many struggles that people have undergone, what perseverance they have displayed, what victories they have achieved over stubborn and apparently indomitable nature, what effect the consciousness of having done all this must have upon individual as well as national character, and what a great triumph it is in itself thus to have fixed themselves firmly on the soil!

Gentlemen, it is useful to us—it carries with it a great moral lesson—to survey such a country as this; teaching us that those who possess great natural advantages, whether as nations or as individuals, are not always either most blessed or happy; that difficulties bring out energies of individuals and nations, and that those nations and those individuals are not only happiest, but in general most successful, who have these difficulties to encounter.

TIDES IN THE BAY OF FUNDY.

With the subject of rivers are connected the tides. The flowing of rivers is naturally connected with the flowing of tides, and the flowing of tides is a physical phenomenon intimately connected with agricultural prosperity in many parts of the world. I need not go far for an illustration—if I take you to the Bay of Fundy, which separates Nova Scotia from New-Brunswick—the waters of which rush up with great velocity, and rise to a great height. Fifty or sixty feet is no unusual tide at the head waters of the bay. As they rush up, they sweep the banks on either side, which on the Nova Scotia side are composed of a species of rock and clay, and arrive at the extremity of the bay loaded with mud to a very great degree. They are the muddiest waters I ever saw. This mud is deposited at the head waters of the bay, in great quantities, and forms the richest land existing in that part of the world. The richest land in Nova Scotia and New Brunswick, is formed of such deposites as these—mainly from the waters of the Bay of Fundy, which not only bring with them the ingredients that fertilize the soil they form themselves, but bring to the industrious farmer the means to fertilize the uplands to a great extent. I do not mean to say that there, or in other parts of North America that I have visited, the advantages of these desposites are fully put to use; but still, the means these marshes afford of enriching the uplands is very great, and capable of producing enough to nourish a large population.

AMOUNT OF RUTA-BAGA TURNIPS CONSUMED BY STOCK PER DAY.—An ox weighing 40 stone, (560 lbs) will eat about 100 lbs of ruta-baga or Swedish turnips a-day along with straw or chaff. Ten sheep of 64 lbs. each, will eat about 200 lbs. in the field, and rather less in the house.—*Agricultural Gazette.*

STEPHEN'S "FARMERS GUIDE TO SCIENTIFIC AND PRACTICAL AGRICULTURE."

Mr. Henry Stephens, of Edinburgh, the author of that excellent work "The Book of the Farm," has published the 1st Volume of a work under the above title, "detailing the labors of the farm as they successively occur." An arrangement has been made to republish this work in the United States from the stereotype plates of the original; Professor Norton, of Yale College, undertaking to adapt the work to farming operations on this Continent. We have had the first No. of this republication laid on our table by Mr. Maclear, bookseller of this city, and we have no doubt the entire work will be a most valuable acquisition to the Farmer's Library. Every thing we have seen from the pen of Mr. Stephens bears the stamp of a mind well versed in all the practical details of the farmer's art, and possessing a most accurate knowledge of the improvements and discoveries which science has so largely yielded. Professor Norton's contributions will be in the shape of an appendix to the several parts of the work; a clumsy arrangement which could not very well be avoided. The author goes into the minutiæ of all important operations which, of necessity, swell the work to a large size; but it will be a library in itself, and although many of his directions will be quite inexplicable to Canadian Farmers, yet every line may be read with profit. The intelligent agriculturist will easily distinguish those methods of culture, crops, &c., suitable to the soil and climate of this country from those recommended for Scotland, and to the uninitiated and unskilled, we trust the explanations and additions of the American Editor will make every thing plain.

We shall from time to time extract for our readers such passages as we may deem most useful, but we hope they will nevertheless buy the work itself. Village, Township, and School Libraries should secure this book as soon as possible. Mr. Maclear will, we dare say, be most happy to take orders.

The following passage may be read with some profit by those who cannot see the advantage of Agricultural Schools, or a system of special instruction for farmers' sons who intend to adopt their father's profession. We may remark that it is a frequent practice in the old country to place young men who are intended for farmers, for two or three years with some good practical Agriculturist to be taught the business, and Mr. Stephens seems to have had these *pupils* in his eye (we beg pardon for the pun) when he wrote his book.

ON THE BRANCHES OF SCIENCE MOST APPLICABLE TO AGRICULTURE.

I believe I have said enough on the best means, in existing circumstances, of acquiring a thorough knowledge of practical agriculture: it is now incumbent on me to indicate those branches of science which will most enlighten the mind of the pupil for the most ready appreciation of agricultural practice; and I may, perhaps, excite general surprise, when I state that no art bears so close a relation to so many branches of science as agriculture.

Indeed agriculture may perhaps be considered one of the experimental sciences, as its principles are no doubt demonstrable by the test of experiment, although farmers have not yet attempted to deduce principles from practice. The necessity for such a deduction is, no doubt, the less urgent, that husbandry is usually pursued as a purely practical art; and the facility of thus pursuing it successfully, of course renders practical men indifferent to science, as they consider it unnecessary to burden their minds with scientific results, whilst practice is sufficient for their purposes. Could the man of practice, however, supply the man of science with a series of accurate observations on the leading operations of the farm, the principles of these might be truly evolved; but I conceive the greatest obstacle to the advancement of scientific agriculture is to be sought for in the unacquaintance of men of science with practical agriculture. Would the man of science become acquainted with practice, much greater advancement in scientific agriculture might be expected than if the practical man were to become a man of science; because men of science are best capable of conducting scientific research, and, being so qualified, could best understand the relation which their investigations bear to practice; and, until the relation betwixt principles and practice is well understood, scientific investigation, though important in itself, and interesting in its results, would tend to no practical utility in agriculture. In short, until the facts of husbandry are acquired by men of science, these will in vain endeavour to construct a satisfactory theory of agriculture on the principles of the inductive philosophy.

If the science of agriculture in its present position be thus correctly represented, it may be expected to remain in an incipient state until men of science become practical agriculturalists, or, what would still prolong such a state of lethargy, until farmers acquire scientific knowledge. It is certainly remarkable that so few scientific men were for a very long period induced to subject agricultural practice to scientific investigation; though of late many, both at home and abroad, have devoted a portion of their time to such a study, and which has already afforded abundant proof, that extensive as the field of research is, it has only to be occupied by numerous observers to produce results interesting alike to the man of science and the man of practice. The long neglect of agriculture by scientific men may perhaps have arisen from the circumstance of its having so intimate a relation to almost every physical science, so that until all its relations were first investigated, no sufficient data could be obtained for a satisfactory explanation of its practice. A short review of the actual relation which the physical sciences bear to agriculture will render this suggestion the more probable.

The sciences which agriculture most immediately affects are mathematics, natural philosophy, chemistry, natural history, comparative anatomy, and veterinary science. Of mathematics, the most useful parts are geometry and trigonometry, and the application of these to the measurement of surfaces and solids. Without a knowledge of mathematics no one can understand

natural philosophy; because it is they alone which can demonstrate the powers of those laws which determine the motion of matter. Of natural philosophy, the most useful branches to the agriculturalist are *mechanics*—"the science of the laws of matter and motion, so far as it is accessary to the construction of machines which, acting under those laws, answer some purposes in the business of life," such as the culture and manufacture of crops; *pneumatics*, "that branch of physics which treats of air, and the laws according to which it is condensed, rarified, or gravitates;" *hydraulics*, that branch of hydrodynamics which treats of fluids in motion, and in particular of the conveyance of water through pipes and channels; *electricity*, which endeavours to determine "the operations of a principle of very wide influence through nature; a cause which is, and perhaps can be no otherwise conceived, than as a highly attenuated form of matter existing in different substances, and passing from one to another with various effects, among such bodies as can be excited to give or to receive it;" *optics*, by which the laws of light, as affecting vegetation by the influence of color, are investigated; and *heat*, which, by diffusing itself through neighboring substances, gives to every object its existing form. By the aid of chemistry, "the manufacture of manures may be expected to continue to improve, the supply of manure further augmented and cheapened, and the development of the resources of the soil thereby hastened and increased." Of the branches of natural history, the most useful to agriculturalists are *meteorology*, "the science of the atmosphere and its phenomena;" *botany*, "which treats of the structure, functions, properties, habits, and arrangement of plants;" and *zoology*, as restricted to the natural history of quadrupeds and insects. The branches of the medical science useful to agriculturalists are *comparative anatomy*, which treats of the structure of the bodies of animals as compared with that of the body of man; and *zootomy*, which treats of the structure, and explains the principles of the art of healing the diseases of the domesticated animals.

Viewing the general aspect of these sciences as presented to the agricultural pupil, in the definitions just given of them, he must at once observe the advantages he would derive by studying them. It is well observed by Sir John Herschell that "between the physical sciences and the arts of life there subsists a constant mutual interchange of good offices, and no considerable progress can be made in the one, without of necessity giving rise to the corresponding steps in the other. On the one hand, every art is in some measure, and many entirely, dependent on those very powers and qualities of the material world which it is the object of physical inquiry to investigate and explain." It is evident that most farming operations are much affected by external influences. The state of the weather, for example, regulates every field operation, local influences modify the climate very materially, and the nature of the soil generally determines the kind of crop that should be cultivated. Now the pupil should desire to become acquainted with the causes which give rise to those influences, by understanding the laws of nature which govern every natural phenomenon. The science which investigates those laws, is called *Natural Philosophy*, which is divided into as many branches as there are classes of phenomena occurring in the earth, air, water, and heavens. Those laws, being unerring in their operation, admit of absolute demonstration; and the science which affords the demonstration is called *Mathematics*. Again, every object, animate or inanimate, possesses an individual character, so that it can be identified, and the science which makes us acquainted with its characteristics, is termed *Natural History*. Farther, every object, animate or inanimate, is a compound body made up of certain elements, of which *Chemistry* makes us acquainted with their nature and combinations. The pupil thus sees how suitable those sciences are to the explication of the phenomena around him, and their utility will be the more apparent to him, the more minutely each science is investigated.

MODE OF CHURNING IN SOME OF THE COUNTIES OF NEW YORK.

At a meeting lately held in the County of Norfolk, C. W., on the occasion of a dinner being given to the Hon. H. J. Boulton, M. P. P., a Mr. Bowlby in reply to a toast to the "Agriculturists," described one of the "Yankee" methods of Churning as follows:—

It seems to be a favorite practice with the politicians of the evening, to press into political matters on the other side of the water, and compare the working of different measures among the "shrewd Yankees" with laws we have in existence here. Now, sir, why cannot the agriculturists profit by the same practice as the politicians? I would simply draw your attention for a moment to the manner in which butter is made in some of the principal counties in New York. They churn all there by mill. They churn it slow, and continue the operation about four hours when it is sweet and cold; by which means they obtain about one third more butter from the same quantity of milk, and that usually of a better quality, than we generally get in the ordinary way of setting the milk and churning only the cream when sour. By this method of keeping dairy, the labor of churning is considerably increased to obviate which they use a tread wheel power suitable to the number of cows kept; for 10, 15 or 20 cows, the power is propelled by a large dog; or more frequently a sheep is used, the preference is given to the sheep as it is steadier than a dog; it can be kept in a small yard close at hand, while a dog will soon learn to come up missing about the time of churning. When their dairy is very large they use horse power. Their whole business is reduced to a system. Instead of turning their milk into pans, &c., to raise the cream, as is usually done here, the labor of which, in skimming and cleaning dishes alone, exceeds that required for finishing their whole dairy, they turn the milk drawn at night into one churn or more according to the number of cows kept, in the morning they repeat the same process, mixing the morning and evening's milk so that it will cool and be ready for churning about ten o'clock the same morning. When the weather is very warm they add cold water freely to keep the milk at the proper temperature while churning, which operation they continue till two in the afternoon. If the butter is likely to gather soon they stop the motion of the churn, or lessen its motion and churn slow. By this process the same amount of butter will be obtained by less than one-half the labor required in the usual method of making it.

That the dairy business would be remunerative in the townships is readily proved from the fact, that large dairies are kept in Genesee County, which is considered the best county in the State of New York for growing wheat, and being in the vicinity of Rochester, it demands a good price, from 10s. to 12s. per bushel, while here wheat is only 5s. or 6s. per bushel. Their land is worth $50, $60 and $80 per acre, while our land, that will yield equally as much pasture, is worth $10, $15 and $20 per acre. Notwithstanding their great advantage in the price or grain, and disadvantage in the

price of land, they find it more profitable to keep dairy, and pay 12½ per cent. for the privilege of supplying the Canadian markets. As the evening is advanced I will close my remarks by a recommend to the agriculturists of Townsend to turn their attention more to this line of business, and supply their own markets.

MILK-HOUSES.

Opinions have changed as to milk-houses.—Some years ago, those made by a spring or cold brook, so that cold water would constantly run around the pans, were considered the best; and those who had not the advantages of a stream of cold water, chose a cold part of the cellar as the next most eligible situation.

But experience shows that spring-houses are too damp, if not too cold, and the bottom of a cellar, if neither too cold or damp, is generally without sufficient ventilation; and in a cellar there are generally many substances injurious to milk, and if a room is made in the cellar purposely for milk, it often communicates with other parts that are used for various purposes.

We think that milk-rooms may be made above the ground, or partially above it, so as to have a good ventilation, and, of course, a pure air, and at the same time sufficiently cool. If no ice is to be used to mitigate the extreme heat, it may be necessary to have the bottom of the house a few feet below the surface of the ground, or to have it constructed on a plan similar to that of an ice-house, in part, excepting arranging it for thorough ventilation, which is not necessary in ice-houses.

If a part of the cellar is used for a milk-room. it should be in the driest part, and where the house is most elevated, that there may be an opportunity for windows well-arranged for ventilation. In a close deep cellar, foul air settles to the bottom, which has an unfavorable effect on milk and butter.

One important objection to cold, damp, and unventilated milk-rooms, is their unhealthy condition for those who attend to the milk, and to churning, and working and packing butter in such rooms in very hot weather.

We take the following interesting article on this subject from the *Wool-Grower*, an excellent paper, recently started by Mr. Peters, of the Buffalo Wool Depot.

Experience had taught me that the great difficulty to be encountered in the manufacture of butter, in warm weather particularly, is the preservation of the milk after it is taken from the cow, until all the cream can rise to the surface, be taken off, and transferred to the churn in a perfect state. To obviate this difficulty after a consultation with my wife, who, by the way I must be allowed to puff a little, is *au fait* in all matters of this kind,—we devised, and had constructed, a milk-house on the plan and of the dimensions following. Intending to make butter for my own family use only, the arrangements were to be, of course, upon a corresponding scale.

Now, then, to a description of the building:—

Frame of joice and scantling, seven by ten feet; six and a half feet from floor to plate, covered with inch pine stuff, planed and matched, painted on the outside; roof of the same. At each end, and near to one side, a window, exactly opposite each other, twenty inches wide, extending from the floor to the bottom plate, covered with wire cloth sufficiently fine to exclude flies, and painted to prevent rust. In the front end a door, and in the rear end a window exactly opposite, about twenty by thirty inches, covered the same as the other windows, and placed sufficiently high from the floor to be on a level with a stationary table, (one and a half inch plank,) for the convenience of straining, skimming, working out butter, &c. Six shelves on one side of the room, ranged one above the other. These shelves are each composed of two strips of pine stuff, one and a half inches in diameter, and of the length of the room, joined together at the ends and middle by cross pieces framed in, leaving the longitudinal strips about four inches apart. These shelves are supported at the ends by strips nailed to the window frames inside, at suitable distances, and at two places between these points by corresponding strips fastened at one end to a stud, and at the other to a stancheon placed about twenty inches in front of the stud, and secured at the top and bottom. This distance is necessary, that the shelves may slide back and forth, as convenience in handling pans of milk requires. In this way but a small part of the bottom of the pan is covered by the shelf, leaving a free circulation of air, which comes in at the window of each extremity. The building is placed under a cluster of fruit-trees, which effectually shields it rays of the sun during the heat of the day.—A second roof of rough boards elevated, say two feet above the top of the milk-house, and of sufficient dimensions to cast a shade all round it, would doubtless answer every purpose.

I do not pretend to say that this is the very best kind of milk-house that can be constructed, but it is the best that we could devise, and with its results we are perfectly satisfied. It answers admirably all the purposes for which it was intended. The milk keeps much longer before changing, giving an opportunity for all the cream to rise; and during the warmest weather in July and August, we are enabled to make the choicest kind of butter, and, for aught I can discover, as much in proportion to the quantity of milk, as at any other time of the season. We have the benefit of an ice-house in close proximity, the contents of which I consider an indispensable auxiliary in the manufacture of butter in warm weather.

Before the erection of this building, we had tried in vain to make butter in warm weather. The cellar was too damp or too cold, or too something; and the pantry too hot.

CHEESE MAKING.

Our columns bear more and more to an awakening interest in this branch of business. It has not received the attention it deserved in past years, from the almost invariable devotion to wheat growing which has characterized the West; but as discouragement prevails in regard to that, from the general failure of the crop, attention is turned to this among other branches of business.

A correspondent asks for a recipe for cheese making. While we would say that no one can expect to make first rate cheese from a recipe, yet a recipe will do to begin on, and experience will carry us forward to any degree of excellence.

We will suppose the rennet procured and got ready, and the cheese to be made to weigh 25 or 30lbs., which will be made of the night's and morning's milk. The night's milk being set, and cooled if necessary, must be skimmed in the morning. This done, and the milk of night and morning mixed together, all must be warmed to 90° of Farenheit, or thereabouts, and the cream which was taken off returned to the milk. When the milk is warm enough, a gill or a little more of good rennet is to be added, and thoroughly stirred in. The whole is now let alone till it coagulates, or becomes cured, which will be in an hour if the rennet is good. With a long wooden knife it is now cut through and through at right angles, so as to make squares of about an inch in size. A strainer is now thrown over it, and the whey dipped off as long as it can be done. The curd is then again broke up, and the whey more completely dipped off than before. Some of the first whey is to be heated as soon as dipped off, for the purpose of scalding the curd. Great care must be taken not to scald the curd too much. Two pailsful at 130° will scald a curd of 20lbs.; but the weather and the quantity of curd must be consulted to determine correctly. When the hot whey is poured on, the curd should be broken up and mixed by hand, that all parts may be equally treated, and made as fine it as can be broken. It is now removed to a strainer and basket, and when the curd is drained, it is returned to the tub for salting. Half an ounce of good salt to a pound of cheese, will prove a good rule, but the taste of the dairy woman is perhaps as good a regulator of this matter as any. The salt must be pure and fine, and thoroughly mixed with the curd, or it will not ripen equally, and the unsalted places will acquire a bad flavor.—*Prairie Farmer.*

BEET-ROOT SUGAR.

The following is a cheap and easy way to manufacture Beet-Root Sugar, for domestic use, and which I have often tried with success. It will probably be new to many of our readers:

There is hardly a good housewife, of even the most limited means, to be found, who would not prepare her apple, peech, cherry, quince, or other preserves at the proper time. That is all well enough, but why not also lay in and prepare the annual stock of sugar and molasses, if it can be done with a trifling expense? A little plat of land for the culture of beet-roots can always be found, and if we consider the fact, that 160 pounds of beet-roots will yield twenty pound of syrup or molasses, or 8pounds of brown palatable sugar and 8 pounds of syrup, the little trouble connected with the manufacture, should be shunned by no good housewife. Except the raw material, the expense will amount to but a few shillings, and the process requires neither costly utensils or materials, nor a vast deal of chemical knowledge.

UTENSILS AND IMPLEMENTS.

1. A grater, for the purpose of mincing the roots.
2. A small wooden screw press, or if that can not be had, two boards loaded with heavy stones.
3. Two straining bags, one of cotten or linen, the other of flannel.
4. A barrel, smaller or larger according to the quantity of sugar to be made. This barrel is to be perforated by holes, three inches distant from each other, throughout its whole length, from the top down to about four feet from the bottom. These holes are filled by cork stoppers. A kettle. The flatter the latter is, the more appropriate will it be for the purposes of manufacturing sugar.

PREPARATORY LABORS.

1. *Preparation of the Lime Milk.*—Take one pound of white, well slacked lime, pour half a pound of lukewarm water upon it, and, after the lime has become pulverized, add nine quarts and a half of water, the whole mass to be stirred up well during the application of water.

2. *Preparation of Animal Charcoal.*—Take a quantity of bone-black *(ebur ustum)* which is to be had in every drug store, as much as necessary, put it into an earthen unglazed pot, and set it into the fire to remain there until it is red-hot. After having cooled off, put it into a dry well closed vessel. The best will be a good bottle.

MANUFACTURE OF THE SYRUP OR SUGAR.

Early in November remove the beet root from the ground, free them from the leaves and wash them clean. After they have dried up, grate them on a common grater, put the grated mass into the flannel straining bag, and press out the juice by means of a common wooden screw press, or by putting it between too well loaded boards. As soon as the proper quantity of juice has been pressed out, measure it into a kettle by the quart, and kindle a fire under the same. The juice, however, must not be allowed to boil at once, but kept in a very warm state, so that you may introduce your finger without feeling pain. Afterwards add to every thirty quarts of juice three quarts of lime milk, mix it well together, and pour it into the barrel, well supplied with holes, so as to discharge the fluid when it becomes necessary. Here the juice is to remain for three hours. One part of it will swim on the surface, and is to be skimmed off; another will sink to the bottom. The clear matter is to be removed from the barrel, by means of the discharging holes, strained again through the well-washed strained flannel cloth, and poured into a clean kettle, after which it is boiled down by a brisk fire to one-third of its volume. To ascertain the third part, measure the third part of the juice into the kettle, make the latter stand straight and fix a small stick in the centre of it. Sign the point of the stick up to which the liquid matter reaches, by a mark, and the latter will give the test after further boiling whether two-thirds have been evaporated. As soon as that is done to every thirty quarts of juice, one pound of well-bruised bone black or animal charcoal, but keep the whole mass constantly boiling, and apply the bone-black only in small doses. After having done so and the boiling being continued a quarter of an hour, reduce the fire somewhat, so that the mass appears to be boiling around the rim of the vessel. If you mean to have only syrup, boil the whole for two hours, add to thirty quarts of juice the white of six eggs, cause it to boil up again, strain it through a cotton of linen cloth, and you will receive from thirty quarts of juice, ten to twelve pounds of the finest syrup. If it is your object to have sugar, boil the whole so long, as to leave two quarts of liquid matter of thirty quarts of juice, add then half a pound of fine sugar, clear the whole by the white of six eggs, strain it, and leave it till it becomes lukewarm, put it then into an enlarged earthen vessel and the sugar will crystalize within a few days. The syrup is poured out, the sugar dried in a warm place, and stored up for use. It is neccessary to take great care of the fire at the last boiling, as too strong a fire will be apt to prevent the crystalization or consolidation of the sugar.

The whole process is a very simple one, and as sugar is an important item in domestic uses, it is worth trying the experiment. We ought to mention, yet, that it is only the white Silesian sugar beet that can be used for

the production of sugar, all the red or reddish varieties are unfit for use. A. L. Krause.
—[*Wool Grower.*

AMOUNT OF FOOD RAISED ON AN ACRE.

The amount of human food that can be produced upon acre is worthy of great consideration. One hundred bushels of Indian corn per acre is not an uncommon crop. One peck per week will not only sustain life, but give a man strength to labor, if the stomach is properly toned to that amount of food. This, then, would feed one man 400 weeks, or almost eight years!

Four hundred bushels of northern potatoes, can also be raised upon an acre. This would give a bushel a week for the same length of time; and the actual weight of an acre of sweet potatoes is 21,344 pounds, which is not considered an extraordinary crop. This would feed a man six pounds a-day for 3,557 days, or nine and two-thirds years!

To vary the diet, we will occasionally give rice.—This has been grown at the rate of ninety-three bushels to the acre over an entire field. This at 45 lbs. to the bushel, would be 4,185 lbs.; or, at 28 lbs. to the bushel when hulled, 2,604 lbs., which at two pounds a-day would feed a man 1,302 days, or more than three and a half years!

Upon reflection, it is not very wonderful that so many non-producers are able to find food, when we see how many mouths one laborer can fill.—*American Agriculturist.*

Small Pox in Sheep.—A renewed outbreak of small pox among the sheep of Norfolk is announced in the English papers.

Important to Stock Breeders. — Farmers are strongly recommended to wash all roots before giving them to cattle. Professor Dick states that he has seen 100 lbs. of earth taken out of a horse which had been destroyed by it.

MAPLE SUGAR.

It is hardly probable that the sugar crop will be very large this year, as the season has thus far been extremely unpropitious, at least in these parts. Still there will in all probability, be some made yet in this month; and it may not be unprofitable to relate a process of refining that we once learned in the days of our *bush-whacking*, which we know to be simple and quite superior to most practices in use.

When the sap is boiled to about the consistence of good sale molasses, set it by to cool, preparatory to applying the finings. Both milk and eggs are used, but eggs are entirely preferable, as in the rising of the curd to bring up the impurities, the whole material of the egg coagulates and rises, while the milk only sends up the curd, leaving the whey to mix with the sugar, and injure its qualities.

Take three or four eggs to each gallon of syrup, and beat them well and thoroughly—mix them with the syrup while cold. Then pass it through a woolen cloth (woolen, mind that,) in preference to any other; for this is one of the important features of the manfacture, to strain through flannel *after fining*, and it is all the straining or settling that is required during the whole process. Reduce it by boiling, till, when dropped into cold water, it will retain its shape and not dissolve; take off the white scum and it is ready for graining.

It is a curious fact, that the process of refining maple sugar till it is entirely white, destroys its peculiar delicious flavor, and renders it a simple sweet, like cane sugar.—*Moore's Rural New-Yorker.*

Experiment with Plaster on Corn.—As accurate experiments are what we all want, I give below the result of which may be of interest to some of your readers.

Last spring I procured two barrels Plaster of Paris, at $2 25 per barrel, which was put on twenty acres of corn, with the exception of four strips across the field, that I might observe the difference. Forty-eight rows in the most even part of the field was chosen for the experiment—16 rows plastered upon each side of 16 rows not plastered; all having the same cultivation—the rows 120 hills in length. The corn where plastered grew much faster than the other, which enabled me to work closer while small, and when cut up, the stalks averaged about eighteen inches taller. When measured, strip No. 1, yielded 35 bushels; No 2, (not plastered) 28 bushels; and No. 3, 35¼ bushels.—(There was no apparent difference in the soil.) This gave me seven bushels, or one-fifth more corn for what cost me only 36 cents.—*Cor. of Ohio Cult.*

Disease in Swine.—A breeding sow was turned off to fatten. A few days after she was noticed to stand with her head down, and to be breathing with great distress, but yet, without any perceptible sound. This continued for a day or two, when supposing she was laboring under an attack of inflamation of the lungs, I cut off her tail, from which she bled freely. This was followed by immediate relief, and in a day or two she was quite well.—*Am. Ag.*

Important Discovery.—Mr. Smith of Deanston, has made an important discovery in the treatment of the fleeces of sheep, whereby the fleece of the living animal is rendered repellant of water by a simple and cheap process; so that the sheep are defended from the pernicious effects of wet, whilst the natural emanations from the body remain unchecked, and the growth and quality of the wool are improved. The effect of this waterproofing has been practically tested on some of the most exposed sheep walks in Scotland, and with signal success. This process, it is expected, will effectually supersede the laying with tar and butter, and other salves, at one-third of the cost, whilst the wool will be preserved white and pure. Though the laying or salving of sheep hitherto has been applied chiefly to flocks on mountainous or exposed situations only, it is believed that the new mode of treatment will be found beneficial to flocks on the most sheltered and southern pastures; and that it will go far to prevent or to mitigate that destructive disease, the rot, which is neither more nor less than dysentery, caused by the continuance of wet weather, whereby the fleeces of the sheep become soaked with rain, and produce the same effect as is produced on man by wet clothing. It is also presumed that this mode of treatment will lead to the successful introduction of the Spanish sheep, and the Alpaca, which are known to have suffered from the prevalence of wet weather in this country. Mr. Smith has secured patents for the United Kingdom and the colonies.—*Scottish Paper.*

The Value of Oil in Indian Corn.—According to Professor Johnston, the popping properties of corn depend upon the expansion of the oil, on the application of heat. A barrel of pop corn would give six barrels of popped corn; while the rice corn, which contains a still larger proportion of oil, would give thirty-six barrels of popped corn from one unpopped; while there are some kinds, which, from the absence of oil, would not pop at all. The structure of grains is a most important study. It is particularly important in its bearing upon the feeding of stock, The same explanation he applied also to wheat, which he said contains a smaller proportion of oil than corn.

Horticulture.

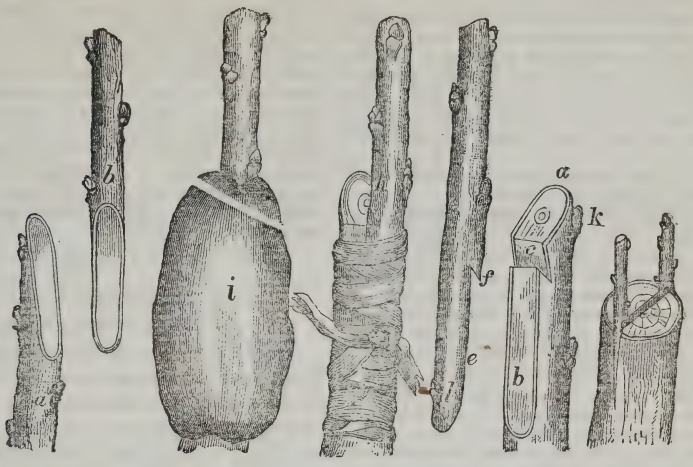


FIG. 1. FIG. 2. FIG. 3.

GRAFTING.

As this is an important operation which every farmer who has an orchard, (and every farmer *should* have an orchard) ought to be able to perform himself, we insert explanatory cuts and a few brief explanations.

When the branch to be grafted is of the same size with the scion, the operation of grafting is very simple and perfect. This mode is called *splice grafting.* (fig. 1.) By a smooth sloping cut upwards on the stock, a, and downwards on the scion, b; you make the two fit so that the inner bark of one corresponds with that of the other; then bind them firmly together with a strand of matting, or the like, cover the wounds with grafting clay or wax, and the operation is complete. But as the size of the stalk is generally larger than the scion, other modes are necessary which require more skill. The two most common are called *tongue grafting,* (fig. 2.) and cleft grafting, (fig. 3.) The following with the aid of the cuts will sufficiently describe them:—

In Tongue Grafting.—Having chosen your stock of the proper size, cut it off at the point where, *a*, it appears best to fit the graft. If the stock is quite small, it may be within three or four inches of the ground.—Then, with a very sharp knife, make a smooth cut upwards, *b*, about two inches in length. Next make a slit, from the top of this cut about one-fourth of the way downwards, *c*, taking out a thin tongue of wood, Cut the scion four or five inches long, or so as to have three buds; then shape the lower end with a single smooth sloping cut, *e*, about the same length as that on the stock, and make the tongue upwards, *f*, to fit in the slit of the downward stock. Now apply the scion accurately to the stock making the inner bark of the scion fit exactly the inner bark of the stock, at least on one side. Without changing their position, tie them together carefully with a piece of bass-matting or tape, *h*. And finally cover the wound with well prepared grafting clay or wax, *i*. This ball of clay should more than cover the union, by an inch above and below, and should be about an inch thick. If grafting wax used, the covering need not be above half an inch thick.

In a month's time, if the graft has taken, it will be expanding its leaves and sending out shoots. It will then be necessary to rub or cut off all shoots between the ball and the ground, if it is a small stock, or all those which would rob it of a principal share of nourishment, if upon a large tree. If the scion or stock is very weak, it is usual to leave one or two other buds for a time to assist in drawing up the sap. About the end of July, after a rainy day, you may remove the ball of clay, and, if the graft is securely united, also the bandage; and the angle left at the top of the stock, *a*, should now be cut off smoothly, in order to allow the bark of the stock and the scion to heal neatly over the whole wound.

Though it is little attended to in common practice, the amateur will be glad to know that the success of a graft is always greatly insured by choosing the parts so that a bud is left near the top of the stock, *k*, and another near the bottom of the scion.

Cleft grafting is a very easy mode, and is in more common use than any other in this country and the United States. It is chiefly practiced on large stocks, or trees the branches of which have been headed back, and are too large for tongue-grafting. The head of the stock is first cut over horizontally with the saw, and smoothed with a knife. A cleft about two inches deep is then made in the stock with a hammer and splitting knife. The scion is now prepared, by sloping its lower end in the form of a wedge about an inch and a half long, leaving it a little thicker on the outer edge. Opening the cleft with the splitting-knife, or a small chisel for that purpose, push the scion carefully down to its place, fitting its inner bark on one side to that of one side of the stock. When the stock is large

it is usual to insert two scions, fig. 3. On withdrawing the chisel, the cleft closes firmly on the scions, when the graft is tied and clayed in the usual manner.

The great number of modes described in books, says Mr. Thomas in his "fruit culturist," have tended rather to bewilder than enlighten beginners; the following remarks, therefore, are more for the purpose of laying down *reasons* on which success depends, than for pointing out the peculiar modes of operation, which may be varied according to convenience, provided attention is given to the essential particulars.

Propagation by grafting differs mainly and essentially from increasing by cuttings, by inserting the cutting into the growing stock of another tree, instead of directly into the soil. The stock thus supplies the sap, as the soil does in the case of a cutting; and the graft, instead of making roots of its own, extends its forming wood downwards, through the inner bark, into the stock itself. Hence there are two chief requisites for success: the first, that the graft be so set in the stock, that the sap may flow upward without interruption; and the second, that the forming wood may flow downward uninterruptedly through the inner bark.

To effect these two requisites, it is needful, *first*, that the operation be performed with a sharp knife, that the vessels and pores may be cut smoothly and evenly, and the two parts be brought into immediate and even contact. *Secondly*, that the operation be so contrived that a permanent and considerable pressure be applied to keep all parts of these cut faces closely together. *Thirdly*, that the line of division between the inner bark and the wood, should coincide or exactly correspond in each; for if the inner bark of the one sets wholly on the wood of the other, the upward current through the wood and back through the bark, is broken, and the graft cannot flourish nor grow.—And, *fourthly*, that the wounded parts made by the operation, be effectually excluded from the external air, chiefly ro retain a due quantity of moisture in the graft, but also to exclude the wet, until, by the growth of the graft, the union is effected.

1. The first requisite is best attained by keeping a keen, flat-bladed knife to cut the faces, and another knife for other purposes.

2. The second requires that the jaws of the stock in cleft-grafting, press with some force, but not too much against the wedged-shaped sides of the graft. A stock one-third of an inch in diameter will sometimes do this sufficiently; but three-quarters of an inch is a more convenient size. In whip-grafting, the tongue and slit should be firmly crowded or bound together.

3. The third requisite is attained by close examination.

4. The fourth is accomplished by plasters of grafting-wax, and by the application of grafting-clay.—*Grafting-wax* may be made by melting together one pound of beeswax, two of tallow, and four of rosin. More wax and less rosin is less adhesive to the hands, but more expensive. It is spread, when melted or softened, on muslin or thin unsized paper, with a brush or spatula. It is sometimes applied without plasters, in which case it should be worked with wet hands, until it may be drawn out into ribbons of wax, which are wrapped round the part. In all cases it should be applied closely, so as to allow if possible no interstices, and cover every cut or split surface otherwise exposed to the air. In cool weather, a lantern, chafing-dish, or hot brick, is necessary to soften the plasters before applying them.

Grafting-clay is prepared by mixing one-third horse-dung, free from straw, and two-thirds clay, or clayey loam, with a little hair, like that used in plaster, to prevent its cracking. Beat and temper it for two or three days, until it is throughly incorporated. When used, it should be of such a consistency as to be easily put on and shaped with the hands.

It is hardly necessary here to mention that propagation by grafting and by cuttings is to be performed early in spring before the buds swell; and that the grafts or cuttings may be cut late in autumn or at any time during winter, provided the natural moisture is preserved until they are used. A convenient mode of thus preserving them, is to wrap or imbed them in damp, not wet, moss; or bury them in a box, beneath the surface of a dry spot of earth, the box to be open downwards, and the grafts to be kept from contact with the earth by sticks across the inside of the box.

HINTS ON HORTICULTURAL SUBJECTS.

BY GEORGE LESLIE.

A few remarks on the *peculiarities* of such Trees and Shrubs as are hardy, and easily procured from a Nursery, might be servicable in assisting to make a selection. All trees are *useful* by affording shelter, producing shade and seclusion, concealing disagreeable objects, and enhancing future value. They are also *ornamental*, never failing to create or add beauty to a residence or landscape,

The Horse Chesnut and Silver Maple may be ranked *first* in stateliness and general elegance. For *rapid growing* trees of a large size, we may take the English Elm, Chinese Abele, European Larch, the Locust, European Ash, Weeping Willow and Poplar. To these may be added, as eminent for the beauty of their flowers and foliage, but attaining less size, the Double Flowering and Hard Shell Almond, and Double Flowering Cherry.

The most *rapid growing* Shrubs are Lilacs of different sorts, Fringe Tree, Upright Honeysuckle, Privet, Syringo, and Guelder Rose.—Such Shrubs as are adapted to grow under the shade of Trees are Privet, Buckthorn, and Missouri Currant. The most remarkable for the beauty of their flowers are Deutchia Scabra, Mezereon, Double Hawthorns, and Tree Pœonias. The best climbing plants are the Queen of the Prairie Rose, Scarlet Trumpet, and Striped Monthly Honeysuckle, the latter rare, and of exquisite fragrance.

Some trees and shrubs retain their fruit and berries till very late in the fall, after having dropped their leaves, of these among trees are the Mountain Ash and Siberian Crabs. Shrubs of this description are Strawberry Tree, red and white, Barberry, and different descriptions of Snowberries.

THE FLOWER GARDEN.

The *Rose* has been a favorite flower from time immemorial among all nations. The at-

tention given to its culture of late years in Europe and the United States, has created many new and splendid varieties, impossible to enumerate. They require a rich deep soil somewhat heavy. Early in Spring all surplus shoots should be cut out, and considerably shortening last years growth of the remainder. Let some rotted manure be dug in around the roots, as early as possible, and suckers removed; a good bloom may then be expected.

Herbaceous Pœonias—These are beautiful hardy flowers, of the easiest culture, thriving in any ordinary soil. After being planted let them remain several years without removal, as they increase annually in size and abundance of flowers. The finest varieties are *Rosea*, large rose color and fragrant; Humei, double crimson, exceedingly large flowers; and Whitlejio, double white, large, beautiful and fragrant.

Phloxes—Of all hardy perennials none are so ornamental to the flower garden from June to November, or so perfectly hardy and easily cultivated as the Phlox. When planted out they require no care, except to tie the flower stalks of the tall sorts to a small stake. They can be obtained of a great variety of colors—pure white, pink, purple, striped, &c. The following would be a good selection:—*Maculata*, reddish purple—flowers in June. *Picta*, beautiful white with purple eye—July. *Frelinghuysen*, striped light purple and white—July and August. *Acuminata*, purple, tall—July and August. *Breckii*, purple with white eye, tall—and flowers in perfection in October. *Decustata*, very fine white, three feet high—August. *Paniculata*, fine pink—August.

It would be superfluous to enumerate more varieties, but where required, the writer can supply 20 distinct sorts, different in color, height and season in flowering. Price of Phloxes, single plant, 1s. 3d. A dozen varieties assorted 12s. 6d.

The *Verbena* is one of the richest of all flowers. They are tender and require to be housed in winter, but when turned out in spring they bloom in the greatest profusion all summer. Wherever flowers are cultivated they are perfectly indispensable, being particularly adapted to a hot dry climate, they appear bright when all else seems to shrink and wither.

Evergreen Trees, Dahlias, &c., will be noticed in your next.

Toronto Nursery, March 30, 1850.

MANURING ORCHARDS.

When orchards bear profusely, or the soil through which their roots extend, yields crops which are removed from the ground, the trees ought to be supplied with an ample dressing of manure, as often, at least, as once in four or five years. We think, however, a better way is to allow the orchard to take its place in a rotation. Unlike many others, we would not object to occupying the ground with any particular species of vegetation, but let it be potatoes, corn, wheat or oats, as the soil or the judgment of the owner may dictate. But we do insist, that where an exhausting crop has been taken, ample compensation in manures should be made, for the exhaustion thus occasioned.

It is better, however, as a general rule, that orchards be plowed only in their younger days, before their tops become much developed; then put the ground in the highest condition of fertility, and lay it down to grass, and invite the extremities of the outspreading, pendant branches to fall as low as the ground, if they prefer. This greatly facilitates and economises harvesting when fruit is hand picked, as all valuable fruit should be, and the grass may be equally well secured under such trees, as when the branches are more elevated. We admire a luxuriant orchard, with its broad, umbrella top, sweeping the ground when loaded with rich, blushing fruit, and no fields can be better occupied than with such a harvest, if the varieties are well chosen and the trees have received the proper care.

If the orchard is in a meadow, and the grass and apples are annually removed, the leaves will of course follow them, as soon as the autumnal blasts or wintry winds sweep over the smooth surface; and thus is the ground robbed of all the vegetable matter to which it has given life through the season. Were the orchard as well protected as the forest, by its numerous low swales, fallen branches, or upturned trunks and roots, and the innumerable standing trees, the decaying leaves and branches, and fallen trunks would restore to the soil all it had abstracted; but in the absence of these, its natural manures, it must receive others or starve.

Ashes are one of the best applications for an orchard; so, also, is swamp muck, or a compost of barnyard manure; charcoal is excellent, as is also lime, and occasionally bonedust, plaster, and salt, each of which is appropriately applied around the roots. Scraping the trunks when they become unthrifty, mossy or hide-bound, and washing with strong soap suds or wood-ashes ley, and then giving a strong coat of whitewash, are attended with the best effects. These act both as manure and destructive of insects and worms.—*American Agriculturist.*

Couve Troncuda.—This is a species of mammoth cabbage, which grows in Portugal to a height of four or five feet. The seeds are sown and treated exactly like those of the common cabbage. The most valuable parts of the plant are the heart and tender flowers buds, which, when boiled tender, and served up with pepper, salt, a little garlic, olive oil, and vinegar, form a most delicious dish with the Portugese. The white ribs, also, when cooked, somewhat resembles scakale. The outer leaves and chopped stalks make excellent food for milch cows.—*American Agriculturist.*

New Green-House Plant.—Few recent acquisitions to the green-house, are of more merit than the Asiatic torrennia (*Torrennia Asiatica*). Its equisitely-shaded flower is small, and of a delicate light-blue, shaded towards the top with a rich, purplish-blue.—*Ibid.*

Pruning Resinous Trees.—The worst time to prune these is in the spring when they are beginning to grow, the safest in autumn or wintor.—*Agricultural Gazette.*

General Science and Miscellany.

NORMAL SCHOOL, TORONTO.

The half-yearly examination of this valuable institution, which seems destined to run a career of increasing usefulness, took place in this city, on the 17th, 18th, and 19th of April. Our limits necessarily compel us to a brief general notice. The examination, upon the whole, was creditable alike to the indefatigable teachers and their pupils, and was witnessed by large and respectable audiences with evident satisfaction. His Excellency the Governor-General's prizes for the two pupils evincing the greatest proficiency in Chemistry, Geology, Animal and Vegetable Physiology; more particularly in their bearings on the theory and practice of Agriculture, were presented by His Excellency in person. It will be seen that the second prize was divided between two competitors, one of whom was a female, both being considered by the judges on a par. The following report of his Lordship's remarks, we copy from a city paper.

His Excellency was then called upon to present the prizes. He said, that before doing so, he desired to express his acknowledgments to those gentlemen who had been good enough to act as judges on the occasion, without whose assistance, and the admirable manner in which they had been seconded by the labours of Mr. Hind, what he (Lord Elgin) had done, would have been entirely useless. When the public mind of England had been aroused to the necessity of popular education, it was thought that there would be no difficulty in finding a sufficient number of teachers for the schools then established, that where the demand was created the supply would speedily follow; this was soon discovered to be a mistake, and that it was necessary to supply the want by carefully training them. It was satisfactory to think that in the early days of Canadian education, this fact had been recognised, and the desire to remedy it been evinced by liberal grants by Parliament to this institution and the attendance of large numbers of pupils. The prizes which he had offered were in one department only of the studies prosecuted in the institution; he hoped however, that they would not think from that circumstance that he was disposed to undervalue the other branches of instruction; he thought that the knowledge imparted should be as extensive as circumstances would admit, that the education of the persons who were to undertake the task of moulding the minds of the rising generation of the province, should be as high as possible, with a due regard, which should always be paid, to the great principle of religion and Christian morality. He did not undervalue other branches, but he had offered prizes to those who had attained most proficiency in the knowledge of scientific husbandry, because he believed that too little attention had hitherto been paid to it, and because it was one from which the Province might derive great benefit. He knew that there was a prejudice amongst practical men, against scientific agriculture, and it was not altogether unreasonable, as there had been, no doubt, a great many things set forth under high sounding titles, which were not founded on a sound basis, and had proved only sources of loss to their projectors; these failures, however, arose from not understanding thoroughly the true principles of the art. The difference between the two parties was simply this, the practical man judged of matters on a small scale, the scientific man on a large one; the practical man was in danger of taking an exception for a rule, a consequence for a cause; both agreed in there being certain natural laws, by which they were obliged to act; but the practical man judged only from his own experience of these natural laws—he refused to believe or profit by anything which he had not seen. He adopted the fallacy of Hume, who said that all contrary to experience was false—that miracles were contrary to nature, and the history of them therefore untrue. He believed that in giving the practical man scientific information, they were not only giving him the means of a direct benefit to himself, but giving him a guard against the projects of mere speculators. One other reason actuated him in choosing this subject. He thought it of the utmost importance in this country to raise the character of the agriculturist, to make the pursuit honorable, that young men might not suppose that their time was thrown away in cultivating the soil. In Great Britain, all the leading public men, statesmen, and even warriors, the Consort of Her Majesty himself, were scientific agriculturists, and even in knowledge of detail could put practical farmers to the blush. In the neighbouring country also, he had lately seen that at a trial of a new plough, the gallant soldier, who now occupied the position of President of the Republic, handled the instrument with the skill of a workman. In this age no art would would keep its place among honourable pursuits unless science was called to its aid and he trusted that those before him, in the positions which they would shortly fill, would inculcate on their pupils the great importance of its introduction into Canadian Agriculture. His Excellency concluded with an earnest prayer that they might be successful in doing so, and that God might bless them in all parts of the laborious duty in which they were about to be engaged.

His Excellency then presented the prizes, which were in the form of very handsome books, to the successful competitors.

1st. Mr. Weston Herriman, of the Township of Whitby.

2nd. Mrs. Dorcas Clarke, of Pickering, and Mr. Finlay McNab, of North Elmsley, County of Lanark.

NATURAL PHILOSOPHY.

No. IV.

ON THE MECHANICAL POWERS.

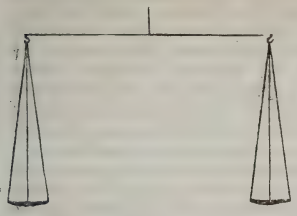
There are six mechanical powers, viz., the *lever*, the *pulley*, the *wheel*, and *axle*, the *inclined plane*, the *wedge* and the *screw*. One or more of these enters into the composition of every machine.

In order to understand the power of a machine, there are four things to be considered. *Firstly*, the power that acts; this consists in the effort of men or horses, of weights, springs, steam, &c. *Secondly*,—the resistance which is to be overcome by the power. The effect of the power must always be superior to the resistance, otherwise the machine could not be put in motion. For instance, were the resistance of a carriage equal to the strength of the horses employed to draw it, they would not be able to draw it. *Thirdly*, we are to consider the centre of motion, or, as it is termed in mechanics, the *fulcrum*, which means a prop. And *lastly*, the respective velocities of the power, and of the resistance.

THE LEVER.

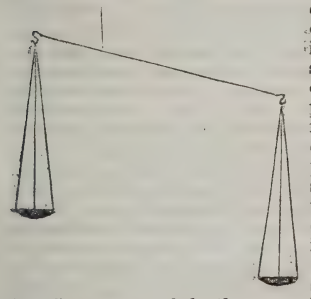
The *lever* is an inflexible rod or beam, that is to say one which is not supposed to bend in any direction.—For instance, the steel rod, to which a pair of scales

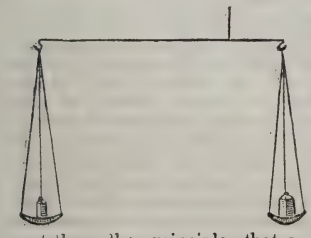
is suspended, is a lever, and the point by which it is suspended, called the prop or fulcrum, is also the centre of motion. The two parts of a lever, divided by the fulcrum, are called its arms.



Now, both scales being empty, they are of the same weight, and consequently balance each other. We have stated that if two bodies of equal weight are fastened together, the centre of gravity will be in the middle of the line that connects them; the centre of gravity of the scales must, therefore, be in the middle between them, as the fulcrum is, and, this being supported, the scales balance each other.

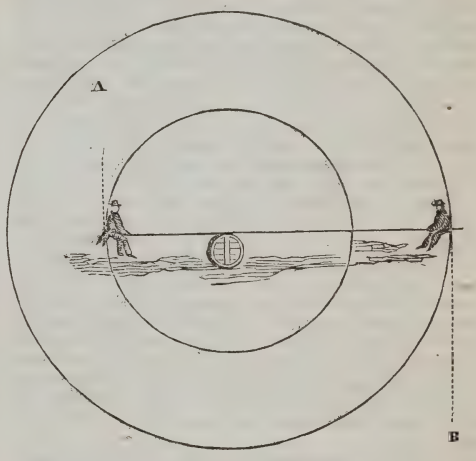
You recollect, that if a body be suspended by that point in which the centre of gravity is situated, it will remain at rest in any position indifferently; which is not the case with this pair of scales, for when we hold them inclined, they instantly regain their equilibrim. The reason of this is, that the centre of suspension, instead of exactly coinciding with that of gravity, is a little above it. If, therefore, the equilibrium of the scales be disturbed, the centre of gravity moves in a small circle round the point of suspension, and is therefore forced to rise; and the instant it is restored to liberty, it descends and resumes its situation immediately below the point of suspension, when the equilibrium is restored. It is this property which renders the balance so accurate an instrument for weighing goods. If the scales contain different weights, the centre of gravity will be removed towards the scale which is heavier, and being no longer supported, the heaviest scale will descend. If the lever be taken off the prop, and fastened on in another point, that other point then becomes the fulcrum. In this case the equilibrium is destroyed; the longer arm of the lever is heaviest, and descends. The centre of gravity is not supported, because it is no longer immediately below that point, as it is now situated, the scales will again balance each other. Thus if a heavier weight be placed in the scale suspended to the shorter arm of the lever, and a lighter one into that suspended to the longer arm, the equilibrium will be restored. It is not, therefore, impracticable to make a heavy body balance a light one; and by this an imposition in the weight of goods is sometimes effected. An ingenious balance, called a steelyard, has been invented, on the principle that a weight increases in effect in proportion to its distance from the fulcrum.



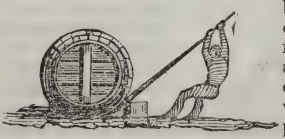


When a lever is put in motion, the longer arm, or acting part of the lever, must move with greater velocity than the shorter arm, or resisting part of the lever, because it is further from the centre of motion. When two boys ride on a plank drawn over a log of wood, the plank becomes a lever, the log which supports it the fulcrum, and the two boys, the power and resistance at each end of the lever. When the boys are of equal weight, the plank must be supported in the middle to make the two arms equal; if they differ in weight, the plank must be drawn over the prop, so as to make the arms unequal, and the lighter boy must be placed at the extremity of the longer arm, in order that the greater velocity of his motion may compensate for the superior gravity of his companion, so as to render their momentums equal. But we know that the action of the power must be greater than the resistance in order to put a machine in motion. For this purpose each boy at his descent touches the ground with his feet; and the support he receives from it diminishes his weight, and enables his companion to raise him, thus each boy alternately represents the power and the weight, and the two arms alternately perform the function of the acting and the resisting part of the lever.

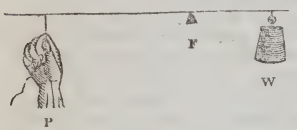
A lever in moving, describes the arc of a circle, for it can move only around the fulcrum or centre of motion. It would be impossible for one child to rise perpendicularly to the point A, or for the other to descend in a straight line to B; they each describe arcs of their respective circles; and it may be judged from the different dimensions of the circle how much greater the velocity of the little child must be than that of the bigger one. Enormous weights may be raised by levers of this description, for the longer the acting part of the lever is in comparison to the resisting part, the greater is the effect produced by it; because the greater is the velocity of the power compared to that of the weights.



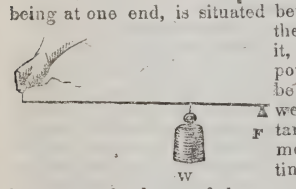
We have all seen a heavy barrel or tun rolled over by thrusting the end of a strong stick beneath it and resting it against a log of wood, or any other object which can give it support, near the end in contact with the barrel. The stick, in this case, is a lever, the support, the prop, or fulcrum; and the nearer the latter is to the resistance, the more easily will the power be able to move it.



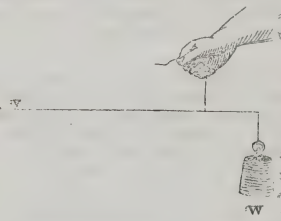
There are three different kinds of levers: in the *first*, which comprehends the several levers we have described, the fulcrum is between the power and the weight. When the fulcrum is situated equally between the power and the weight, as in the balance, the power must be something greater than the weight, in order to move it: for nothing can in this case be gained by velocity. The two arms of the lever being equal, the velocity of their extremities must be so likewise. The balance is therefore of no assistance as a mechanical power, but it is extremely useful to estimate the respective weights of bodies. But when the fulcrum, F, of a lever is not equally distant from the power and the weight, and that the power, P, acts at the extremity of the longer arm, the power may then be less than the weight, W, its deficiency being compensated by its greater velocity; as we observed in describing the *see-saw*. Therefore, when a great weight is to be raised, it must be fastened to the shorter arm of a lever, and the power applied to the longer arm. But, if the case will admit of putting the end of the lever under the weight no fastening will be required, as you may perceive by stirring the fire. The poker is a lever of the first kind; the point, where it rests against the bar of the grate, whilst stirring the fire, is the fulcrum, the short arm or the resisting part of the lever, is employed in lifting the weight, which is the coals; and the hand is the power, applied to the longer arm, or acting part of the lever. A pair of scissors is an instrument composed of two levers, united in one common fulcrum: the point at which the two levers are screwed together, is the fulcrum; the handle to which the power of the fingers is applied, are the extremities of the acting part of the levers; and the cutting part of the scissors are the resisting parts of the levers: therefore, the longer the handles, and the shorter the points of the scissors, the more easily will they cut. Thus, when pasteboard, or any hard substance is to be cut, that part of the scissors nearest the screw or rivet is used. Snuffers, and most kinds of pincers, are levers of a similar description, the great force of which consists in the resisting part of the lever being short in comparison of the acting part.



In levers of the *second* kind, the weight, instead of being at one end, is situated between the power and the fulcrum. In moving it, the velocity of the power must necessarily be greater than that of the weight, as it is more distant from the centre of motion. We may sometimes see a barrel moved by means of a lever of the second kind,, as well as by one of the first. The end of the stick is thrust under the barrel rests on the ground which becomes the fulcrum; the barrel is the weight to be moved, and the power the hands applied to the other end of the lever. In this instance there is an immense difference in the length of the arms of the lever, the weight being almost close to the fulcrum, and the advantage gained is proportional. The most common example that we have of levers of the second kind is in the doors of our apartments; in these the hinges represent the fulcrum; the hand, the power applied to the other end of the lever; and the door, or rather its inertia or the weight which occupies the whole of the space between the power and the fulcrum. Another very common instance is found in the oar; the blade is kept in the same place by the resistance of the water, and becomes the fulcrum, the resistance is applied where the oar passes over the side of the boat; and the hands at the handle are the power. Nut-crackers are double levers of this kind: the hinge is the fulcrum; the nut-crackers the resistance, and the hands the power.



In levers of the *third* kind, the fulcrum is also at one of the extremities, the weight or resistance at the other, and the power is applied between the fulcrum and the resistance. Thus the fulcrum, the weight, and the power each in its turn, occupies some part of the lever between its extremities. But in this third kind of lever, the weight being further from the centre of motion than the power, the difficulty of raising it, instead of being diminished is increased. Levers of this description are used when the object is to produce great velocity. The aim of mechanics, in general, is to gain force by exchanging it for time; but it is sometimes desirable to produce great velocity by an expenditure of force. The treddle of the common turning lathe affords an example of a lever of the third kind employed in gaining time, or velocity, at the expense of force. A man, in raising a long ladder perpendicularly against a wall, cannot place his hands on the upper part of the ladder; the power therefore, is necessarily placed nearer the fulcrum than the weight, for the hands are the power, the ground the fulcrum, and the ladder, the weight, which, in this, as well as in the door, may be considered as collected in the centre of gravity of the ladder, about half way up it, and consequently beyond the point where the hands are applied. This kind of lever is employed in the structure of the human frame. In lifting a weight with the hand the lower part of the arm becomes a lever of the third kind; the elbow is the fulcrum; the muscles which move the arm, the power; and as these are nearer to the elbow, than the hand is, it is necessary that their power should exceed the weight to be raised. It is of more consequence that we should be able to move our limbs nimbly, than that we should be able to overcome great resistance; for it is comparatively seldom that we meet with great obstacles, and when we do, they can be overcome by art.



White Zinc Paint.—The Society for the Encouragement of National Industry, in Paris, has granted a medal of gold worth 3,000 f. to M. Leclaire for his substition of white of zinc for white of lead. It appears that, from 1838 to 1847, no less than 3,142 persons entered the Paris Hospital, attacked by disease, originating in the use of lead. Of these, 1,898 persons worked at white lead or at minium; there were also 712 painters, 63 grinders of colors and 10 preparers of visiting cards with porcelain surface. Since 1846, no person has been attacked in M. Leclaire's establishment.—*The Builder.*

Salt Injurious to Poultry.—Do not give poultry salt, nor salt food. It is poisonous to them.

MEDICINE FOR HORSES.

As a general rule, any medicine, *except an emetic*, is good for a horse that is good for the same complaint in the human system. Multiply an ordinary dose for a man by nine, for a common horse, or even by twelve for a very large horse.

The above was obtained upon a late visit to Col. Wade Hampton, of South Carolina, and few men in this country are more competent to give prescriptions of the kind than that gentleman. He has been long known as one of the best breeders of horses, in the United States, as well as one of the first rate cotton planters and stock breeders in the south.—*Ibid.*

NEW MODE OF VENTILATION.

The discovery, in England, of a new principal of ventilation, the truth of which seems established beyond question, will furnish an important desideratum in green-house management.

It has been ascertained that air, like water, can be made to circulate through a syphon, but inversely with the latter fluid. That, whereas, water will enter a syphon by the shorter arm, and discharge itself by the longer, air on the contrary, will always enter by the longer arm and discharge itself by the shorter.

[This surely is a mistake—the illustration of the chimney proves it. The difference of action between air and water is not in the arms of the syphon by which the fluids enter, but in the position of the syphon. In the case of water the long arm is turned down, in the case of air up. Both enter by the short arm.—Ed. Canadian Agriculturist.]

Thus, if a stove-pipe elbow be inserted in the chimney, with one of its orifices facing the ceiling, a syphon will be formed of which the chimney will be the longer arm. The air will rush into the shorter arm of the stove pipe, and discharge itself by the longer arm of the chimney, without the necessity of a fire in the chimney, to cause a draught, which is often required where there is simply a hole in the chimney for ventilation.

One great advantage of this principle, as we understand it, is, that there is no inward current of cold air from the outside—that the syphon can only work in one direction. Thus, when there is no chimney, two stove-pipe elbows united can be inserted in a sash pane with the shorter elbow in the room. The current of air will set strongly from the room, and a person may sit immediately under the pipe without danger from the descent of the cold air upon him, which always takes place when a sash is lowered.

This principle is of no slight importance in its application to greenhouses. Every gardener knows the importance of getting rid of the bad air in his houses, and also knows the difficulty of doing so without having his plants *cut*, to use a technical term, by the cold air rushing in upon them. Now this discovery remedies the difficulty at once. All he requires, is a sufficient number of these stove-pipe elbows introduced, either into the back wall or roof, with means of closing them at pleasure, and he can, in the most extreme weather, throughly ventilate the house, without the least injury to his plants, from the cold.

Many of the inventions of the present day seem to be less the novel application of old principles, than the discovery of entirely new principles in natural science. Such is the case both with Polmaise heating, and with the progressive tendencies of the age—still more important results may be anticipated from the exertion of mental inquiry in this direction.—*American Agriculturist.*

MANUFACTURE OF PARCHMENT.

Vellum is made of the skins of calves, kids, and dead born lambs; and parchment is made of thin sheep and she goat skins. The wool or hair must be removed from them first, and then they are steeped in a pit of lime water. After they are taken out of the lime pit, they are shaved and well washed, and then stretched on a frame made of upright and cross pieces strongly fastened together, and the bars are perforated with a series of holes to receive hard wood or iron tapered pins. Each pin has a hole in it like a violin pin, to hold the string tied to the skin, to stretch it, and prevent it from puckering while drying. Skewers are also employed to stretch more or less of the skin on this frame, *(herse,)* according as a greater or less piece is required to get hold of. Some employ hoops in place of the herse, and this answers tolerably well. The great point is to stretch the skins as much as possible, keeping out all the wrinkles. While the skin is on the stretching frame, the workmen with a currrying double edged knife, remove the fleshy excresences by drawing the knife downwards. The skin is then sprinkled upon the fleshy side with chalk, and well rubbed with a piece of flat pumice stone. The pumice stone is then over the other surface of the skin without chalk. The skin is then allowed to dry, but must be protected from sunshine and frost. It must not be dried too suddenly. When it is perfectly dry, the chalk is removed by rubbing it with the wooly side of a lamb's skin; but great care must be taken in this process, not to injure the surface. All grease must of necessity be removed from it; this is the object of steeping it in the lime.

After the skin is dried, it is transferred to a frame called the scroper, where it is extended with cords, generally upon a piece of calf-skin well stretched. The skin is placed with the tail downwards, when the rough edges are paired off with a sharp knife, and then the outside surface is scraped obliquely downwards till it becomes perfectly smooth, and whatever irregularities may remain, are removed by a flat, smooth piece of pumice stone. To do this, the skin is placed upon a stool stuffed with wool and covered with soft parchment. It is called the cushion. The pumice stone should be very fine, the finer they are the better.—Sometimes there are small holes made in the parchment skin: these are neatly patched by cutting the edges thin and pasting on small pieces with gum water. Parchment is often colored green, which is done by a mixture of cream of tartar, virdigris and nitric acid, (only a small quantity of the latter) It is made into a solution of water and laid on evenly with a sponge—the skin having been first wet. Parchment receives its necessary lustre from the white of eggs, or weak gum water.—*Sci. American.*

MEDICAL USES OF SALT.

In many cases of disordered stomach, a teaspoonful of salt is a certain cure. In the violent internal aching, termed cholic, add a teaspoonful of salt to a pint of cold water—drink it, and go to bed; it is one of the speediest remedies known. The same will revive a person who seems almost dead from receiving a very heavy fall, &c.

In an apoplectic fit, no time should be lost in pouring down salt and water, if sufficient sensibility remain to allow of swallowing; if not, the head must be

sponged with cold water until the senses return, when salt will completely restore the patient from the lethargy.

In a fit the feet should be placed in warm water with mustard added; and the legs briskly rubbed, all bandages removed from the neck, and a cool apartment procured if possible. In many cases of severe bleeding at the lungs, and when other remedies fail, Dr. Rush found two teaspoonfuls of salt completely stayed the blood.

In cases of bite from a mad dog, wash the part with strong brine for an hour, then bind on some salt with a rag.

In toothache, warm salt and water held to the part, and renewed two or three times, will relieve in most cases. If the gums be affected, wash the mouth with brine; if the teeth be covered with tartar, wash them twice a day with salt and water.

In swelled neck, wash the part with brine, and drink it also twice a day until cured.

Salt will expel worms, if used in the food in a moderate degree, and aids digestion; but salt meat is injurious if used much.

NEW CANDLE MACHINE.

We learn from the Baltimore American that the Messrs. Matthewson, of that city, have recently introduced a new patent candle making machine from England, which is said to be simple and ingenious in its construction, and promises to be of much utility.

It consists of a number of moulds, holding eighteen each, which are furnished with a bobbin to each mould holding wick for over one hundred candles on each bobbin.

At the commencement the first mould is threaded by hand. It is then placed on a railroad and brought under a cistern from which it is filled with tallow; it is then shoved along to a carriage, which when it has received its load, is conveyed by rail outside to an open shed in the yard, where it is allowed to cool. When that operation is completed it still continues its circuit on the railroad, until it arrives at the machine, upon which it is placed and a stroke of a lever ejects the whole eighteen candles, at the same time threading the moulds for a fresh charge; a revolving saw knife cuts off the wicks as fast as the hand can move it across the machine, the ends of the wicks are seized by pinchers, which grip each of them as a person would with the finger and thumb; it is again placed on the rail and continues its course to undergo the same operation. On their way over the rail they are interrupted by a person who removes the pinchers and trims the butt ends of the candle.—*Farmer and Mechanic.*

To Decompose Dead Animals for Manure.—The most rapid way to effect decomposition of dead carcases is to mix them with something already decomposing. Chop the flesh up, and lay it in alternate beds with hot stable manure, and cover over with vegetable mould, burnt earth, or charred stuff of any kind. Any of these will detain the effluvia.—*Agricultural Gazette*

ELECTRICITY.

The earth is the great reservoir of electricity, from which the atmosphere and clouds receive their portion of the fluid. It is during the process of evaporation that it is principally excited, and silently conveyed to the regions above; and also during the condensation of this same vapor, the grand and terrific phenomena of thunder and lightning are manifest to our senses.

In order to form a correct estimate of the immense power of this agent in the production of electricity, we must bring to our view the quantity of water evaporated from the surface of the earth, and also the amount of electricity that may be developed from a grain of this liquid. According to the calculation of Carvallo, about five thousand two hundred and eighty million tons of water are probably evaporated from the Mediterranean Sea in a single summer's day. To obtain some idea of the vast volume of water thus daily taken up by the thirsty heavens, let us compare it with something rendered more apparent than this invisible process. President Dwight and Professor Darby have both estimated the quantity of water precipitated over the Falls of Niagara at more than eleven million tons per hour. Yet all the water passing over the cataract in twenty days would amount only to that ascending from the Mediterranean in one day. More recent estimates make the mean evaporation from the whole earth as equal to a column of thirty-five inches from every inch of its surface in a year, which gives ninety-four thousand and fifty cubic miles as the quantity annually circulating through the atmosphere. Thus we see the magnificent scale on which the great machine works.

Dr. Farraday has shown that a single drop of water contains as much electricity as an ordinary flash of lightning—enough at least to destroy the life of an elephant. Thus the little dewdrop, from which the poet has derived such sweet images, may suggest to us deas of a more sublime nature.

TO PRESERVE EGGS.

I have often heard it remarked, and observed it myself, that eggs that remain in the nest will hatch much better than those taken out and returned, when the hen begins to sit. I know of no other reason why this should be, except the fact that the hen turns her eggs over, every time she goes to her nest. I think, if your correspondent C., will turn his eggs every day, and keep them in a cool, dry place, he may calculate on them a much greater length of time. I have kept them a month in this way, and preserved their vitality; and I don't know but the same rule would hold good for a longer time. Turning the eggs prevents the yolk from settling. A Yankee.

—[*Boston Cultivator.*

Remarks.—Dr. Bennett informs us, if eggs are kept in a cool and dry place, their vitality might be calculated upon for many weeks, and even months.—*B. C.*

FEMALE IMPROVEMENT.

Mrs. Kirkland, in insisting upon the duty of females to improve their minds while young, asks the following "home question:"

"Who are the women that sow dissension in society—the tale bearers—the whisperers of scandal? The really well informed and accomplished? Those who enjoy the best books, love to read aloud to their friends luxuriate in high toned poetry—covet the conversation of instructed people, and are able to bear a part in it themselves? It is not necessary to answer this question. It is undeniable, that even sincere piety encounters a most formidable obstacle in the emptiness which has led to a habit of gossip and detraction, while an utter distaste to whatever is low or false, protects even the mere women of the world from this class of faults. On whom does this life of care and trial fall soonest? On her who has made its every day frivolities her object, or on the student of nature, of character, of books, whose thoughts have something on which to rest, little

dependent on fortune, and not at all on fashion? Who torments us by a petty, prying curiosity so much, as one whose rational curiosity has never been exercised upon objects of real interest? Who that knows how to value books, will be likely to run mad after dress and vulgar show."

HOME.

Thou, whose every hour,
Is spent in home's sweet bower,
Where love, like golden fruit o'erhanging grows—
Where friends to thy soul sweet,
United, circling meet—
As lapping leaves that form the entire rose—
Thank thy God well! soon from this joy thy day
Passes away.

Thou at whose household fire
Still sits thy aged sire—
An angel guest; with lore as those of old—
Make thy young children's care,
That crown of hoary hair,
Which the calm heavens love as they behold!
Soon, soon the glory of that sunset ray
Passes away.

Thou from whose household nooks
Peep forth gay, gleaming looks.
Those 'fairy-heads' shot up from opening flowers,
With wondrous perfume filled—
The fresh, the undistilled,
This overflowing bliss that childhood showers—
Praise Him who gave, at whose word their stay
Passes away.

Thou, with another heart
United, though apart,
As two close stars, that, mingling, shine but one—
Whose pleasant pathway lies
'Neath tender watchful eyes,
Where love shines clearer than the morning sun—
Praise God for life that in such soft array
Passes away.

More—more—thou hast yet more!
These, thy heart's treasured store,
Transferred to heaven, may win immortal birth—
With radiant seraphs there,
May tune ambrosial air
To every glorying hymn of praise—while earth,
Like lingering music from some harper gray,
Passes away.

HOW DO YOU SPEND YOUR EVENINGS?

Young man, how do you spend your evenings?—Answer this question, and we can tell you, almost to a certainty, what will be your future character. In our view, more depends upon the manner in which young men pass this season, as it regards their course and conduct in years to come, than upon anything else. We have been an observer of men and things for the last twenty years, and can point to many a youth, who has caused weeping and sorrow in his family, disgraced his name, and is now an outcast in the world, or has sunk to a dishonored grave, who commenced his career of vice, when he broke away from wholesome restraint and spent his evenings in the company of the abandoned. On the contrary, we know many estimable young men—the pride and hope of their friends—who are working their way to favor and wealth, who spend their leisure evenings in some useful pursuit.

Young man, listen to us, and take heed to our words—not that we wish to deprive you of a single pleasure, or debar you from any innocent amusement. We entreat you to be particular *where* and *how* you pass your evening hours. If you lounge about the bar-room, partaking of the vulgar conversation that is introduced, and join the ribbald song, or stand at the corner of the streets, using profane and indecent language, you will soon habituate yourself to low blackguardism and vile conversation, that no young man who respects himself will be found in your company.

Irresolution.—In matters of great importance, and which must be done, there is no surer argument of a weak mind than irresolution; to be undetermined where the case is so plain, and the necessity so urgent; to be always intending to lead a new life, but never to find time to set about it; this is as if a man put off eating and drinking, and sleeping, from one day and night to another, till he is starved and destroyed.—*Tillotson.*

WHAT IS DIRT?

Old Dr. Cooper, of South Carolina, used to say to his students, "Don't be afraid of a little dirt, young gentlemen. What is dirt? Why nothing at all offensive, when chemically viewed. Rub a little alkali upon that 'dirty grease spot' on your coat, and it undergoes a chemical change and becomes soap. Now rub it with a little water and it disappears: it is neither grease, soap, water nor dirt. 'That is not a very odious pile of dirt,' you observe there. Well, scatter a little gypsum over it and it is no longer dirty. Everything you call dirt, is worthy your notice as students of chemistry. Analize it! Analize it! It will separate into very clean elements.

"Dirt makes corn, corn makes bread and meat, and that a very sweet young lady that I saw one of you kissing last night. So, after all you were kissing dirt—particularly if she whitens her skin with chalk or fuller's earth, There is no telling, young gentlemen, what is dirt. Though I must say that rubbing such stuff upon the beautiful skin of a young lady is a dirty practice. 'Pearl powder,' I think is made of bismuth—nothing but dirt."

The memory ought to be a store-room. Many make theirs a lumber-room.

Newly Constructed Oven.—Mr. John Case, of Burlington, N. J., has in operation an oven, which is said to be of a new construction—the fire being in a separate chamber, while a valve in the chimney draws the smoke, gas, &c., entirely out of the oven before the bread is introduced, and the oven is kept constantly hot, by which mode, bread, dinners, pies, or cakes can be baked at any hour when they may be wanted.

RECIPES FOR HOUSEWIVES.

Cream Tarter Sponge Cake.—1 cup of sugar, 1 cup of flour, 4 eggs, 1 teaspoon of cream tarter; half-teaspoon of saleratus, dissolved in milk. Flavor with lemon; grate in the rine, or if extract, 1 teaspoon.

Snow Ball Cake.—Half cup of butter, 1 cup of loaf sugar, the whites of three eggs; stir thick as cup cake. Teaspoon of saleratus. Bake in small tins.

Cream Cake.—1 cup of cream, 1 cup of sugar, 1 egg, 1 teaspoon saleratus, 1 of salt. Thick as pancakes.

Fried Cake.—1 cup of sugar, 2 of milk, 2 eggs, half cup of butter, saleratus, and flour.

Editors' Notices &c.

To the Editors of the Agriculturist.

SIRS—

Every person with whom I have conversed has expressed a most ardent desire to have Canada fairly and nobly represented in the great Exhibition to be held in London in May, 1851. This I believe is the general feeling in Canada. To carry out this noble object it will be necessary to raise a fund to bear the expenses of transporting such articles as may be considered, by competent judges, worthy of such distinction.

I would propose, as one means of raising the necessary funds, small subscriptions to be placed at the disposal of the Agricultural Association; and will be one of one hundred subscribers to raise £100 for that purpose. From conversations with some members of the Agricultural Association, I have no doubt but they will, at their next Anniversary, give, in premiums, &c., as liberally as their funds will justify, for the purpose of facilitating this great object. I would also respectfully suggest that application be made to the Government by the Association for a grant for the same purpose.

If this proposal should meet with your approval, please give it a place in your paper.

Yours, J. HULBURT.

Toronto, April 24, 1850.

[We quite agree with our Correspondent that this matter should be taken up with spirit by the people of Canada. Not a moment, however, should be lost, as the Exhibition is to come off in May, 1850. We would suggest the propriety of having a public meeting in Toronto, when a fund, no doubt, could be raised for promoting the objects which Mr. Hulburt mentions. The Provincial Association, we are assured, will be as liberal as their funds will admit, in awarding *discretionary* premiums to such deserving articles, as may be sent to the Exhibition at Niagara, in September next. His Excellency, the Governor General, we observe, has signified his intention to offer £100 sterling, to be distributed in prizes to such Canadian productions of distinguished merit, as may be exhibited in England. We think more unity of effort is required throughout the Province in reference to this object, and that some plan of united action should be adopted, by which all parties might be made acquainted with each others proceeding. Application to Government might, with propriety, be made for aid, in carrying out objects, in which the character and interest of the country are deeply involved.—ED. AGRICULTURIST.]

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—At the special request of Prince Albert, the Council have determined to hold the Annual Exhibition next year in London, in conjunction with the Grand Exhibition of the Industry of all Nations, which is fixed to take place some time in May.

GRAND PLOUGHING MATCH.—This important trial of skill is to come off on May 3rd, near Thornhill. The competition is for a purse of £100, which will be contested by 20 ploughmen of the township of Scarborough, with an equal number from the township of Vaughan. We shall give particulars of the result in our next.

MR. THOMAS RYALL, of Galt, has undertaken to procure a list of subscribers in accordance with our published terms, so as to secure one of the prizes we offer. Any person subscribing to Mr. Ryall may, we think, rely upon his name being transmitted to us and the paper being sent.

COUNTY OF YORK AGRICULTURAL SHOW.—The Spring Exhibition of this Society will be held in this City, on Wednesday, May 8th. A larger gathering than usual is anticipated.

COLD IN HORSES.—At this season of the year, colds and coughs are very frequent among horses. The throat is sometimes so sore, as to prevent the animal from eating, and very commonly a considerable time must elapse before recovery takes place, sufficiently to allow him to be put to work. I have found the greatest benefit in themselves from steaming or fumigating the head; this seems to allay the irritation of the disease, and to bring on a discharge which very soon relieves, or, as farriers sometimes say, "draws away the complaint." The fumugation I conduct as follows;—A good sized pail is half filled with bran, chopped hay, or almost any material which will take up a considerable quantity of fluid, and boiling hot water is stirred among it till the pail is three parts full. The pail is then to be placed in the bottom of a good sized sack, such as is commonly used for grain, and the mouth of the sack is to be drawn over the animal's head, and gathered pretty closely round the throat, just behind the jaws and ears. If the horse will hold down his head, so that the pail may stand on the floor, it will be all the better, but, if he will not do this quietly, the pail may be raised on any convenient object. Some animals are a little shy, in allowing their heads to be put in the bag for the first time, but with coaxing and good usage, they may nearly in every case be brought to submit, and from the relief which the steaming seems to afford, will afterwards readily allow repetition of the remedy. This plan of steaming the head is much better than merely holding a box of scalded bran under the nose, or simply putting the same in the manger. When the steaming is concluded, the head should be wiped with a dry cloth, and if convenient, subsequently covered with a hood.—*Com.*

MARKETS, &c.—The last advices from England indicate a trifling improvement in wheat and flour, which has given a little more firmness to prices here. The state of the back country roads has prevented large arrivals, yet a considerable business has been done for several days past at somewhat improved rates. Stocks both of wheat and flour in the western States are said to be very low, and a large portion of Southern demand will have to be supplied from the Northern and Eastern ports. We think, therefore, the chances are good of a brisk demand for Canadian wheat from the States; and if the Reciprocity bill should pass into law, of which there is reason of entertaining sanguine hopes, this branch of trade would soon become one of great importance, possessing a capability of progressive increase. We learn from reliable private information received per last mail that many of the large exporters of grain to England will sustain heavy losses in consequence of depreciated prices, and that reaction may now be reasonably looked for. If, however, the growing crops in the British Isles and on the Continent should progress favorably, prices, under a system of free importation, cannot advance much. It appears that the British corn dealers have imported comparatively little on their own responsibility; the greater part having been imported either by speculators intending to pay in British manufactured goods, or by foreign merchants.

The wheat plant in Canada, like the season, is very backward, and we are glad to learn that the recent severe frosts have not injured it, to anything like the extent that was apprehended. In most parts of the States, wheat is said to look promising—particularly in the west, when it so signally failed last year. The weather has now become more genial although vegetation has as yet made scarce any visible progress. Ploughing, sowing, and the other normal agricultural operations are proceeding with great activity, and the energies of the farmer must be fully brought out. Notwithstanding the season opens late, the crops may prove abundant.

The following are city quotations;

Flour, 19s. *a* 21s. per bbl. of 196lbs.; Wheat, 4s. *a* 4s. 6d. per bushel of 60lbs.; Spring Wheat, 3s. 9d. *a* 4s. per bushel of 60lbs.; Rye, 2s. per 60lbs.; Barley, 2s. *a* 2s. 2d. per bushel of 48lbs.; Peas, 2s. 3d. *a* 2s. 9d. per bushel of 60lbs.; Oats, 1s. 3d. *a* 1s. 4d. per bushel of 34lbs.; Hay, 55s. *a* 65s. per ton; Straw, 25s. *a* 30s. per ton; Butter, fresh, 10d. *a* 1s. per lb.; Butter, in tubs, 5d. *a* 7d. per lb.; Eggs, 5d *a* 7d. per doz.; Grass Seed, 8s. 6d. *a* 10s. per bushel of 48lbs.; Flax Seed, 9s. *a* 10s. per bushel; Clover Seed, 20s. *a* 25s. per bushel.

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, } EDITOR,
WILLIAM McDOUGALL, } ASSISTANT EDITOR.

VOL. II. TORONTO, JUNE 1850. No. 6.

The Canadian Agriculturist.

Published Monthly, at Toronto, C. W.

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MEANS FOR PROMOTING THE AGRICULTURAL INTERESTS OF CANADA.

We beg to call the earnest attention of our readers to several important documents and papers, having reference to the advancement of Canadian Agriculture, which are to be found in our present number.

The draft of a new Agricultural Bill, which has already been submitted to the Government, and which will be brought before Parliament without delay, cannot fail, we think, to receive that attention by the legislature, which the magnitude and obvious utility of its objects demand. The great difficulty that has hitherto been felt, in the efficient application of the Parliamentary Agricultural grant, and the considerable sums of money raised by the various Agricultural Societies, has in great measure arisen, from the defective condition of the existing statutes, under which those matters have been regulated; and the absence of a simple and uniform machinery, for arranging the transactions and proceedings of the various Societies in the Province; and combining them into a systematic annual report. This might easily be done in some such way as the Bill provides for the establishment of one Central Board of Agriculture. It was precisely in this way that a powerful impetus and higher status were given to the Agriculture of Britain more than half a century ago, by the Board then formed, and for several years supported, by the government. In England it was this Board which commenced the collection and arrangement of Agricultural facts, publishing elaborate county reports; and it is to the efforts of such men as the late Sir Joseph Banks, Sir John Sinclair, and Arthur Young, that Agriculture, both in England and Scotland, has been brought to its present advanced condition. France, and several other

European Countries have followed the example, although with inferior success; and the United States are now beginning to follow with an earnestness of purpose, and the advantages of accumulated knowledge, which bid fair, at no distant day, to place them in the van of the march of agricultural improvement.—Will Canada content herself with slowly jogging on, while the rest of the world is progressing with daily increasing speed? We trow not. Our progress hitherto, in several important departments of human industry, at least, is not to be despised; and by concentrating our efforts, in the spirit of an enlightened patriotism, *on objects of undoubted utility*, this country may be brought to a high state of cultivation, wealth and happiness.

Every effort, we are informed, will be made by the Directors and Local Committee of the Provincial Association, towards increasing the attractiveness and utility of the next exhibition. We trust their exertions will be liberally supported by the public. Apart from a hearty co-operation *on the part of the people*, it is impossible that any movements of this sort can prove successful. Government ought, and no doubt will, do something; but it should never be forgotten, that the *people only* can render efforts of this nature of great and permanent value to the country. We have heard complaints that several of the premiums of the Provincial Association are too small, and that sufficient inducement is not held out to ingenuity and enterprise. There is without doubt some justice in these complaints; several productions that we could name, both of our soil and of our mechanics' skill, should have higher awards granted them. Now this defect admits of but one remedy, which the public has in its own keeping, viz., *a more general and liberal support of the Society from all classes of the community.* The Provincial Association, it should be borne in mind, is not a sectional or class institution; it is by no means limited even to agriculture, unquestionably by far the largest interest in the country; but it seeks to encourage and receives within its wide embrace, every art and industrial pursuit—the ornamental with the more obviously useful—that ministers to the necessities or refinement of mankind. A Society, therefore, having such high and comprehensive aims, has an undoubted claim on the liberal and hearty support of all true friends of their country.

ON PRACTICAL FARMING.

[*Concluded from page* 101.]

TO IMPROVE SANDY SOILS.

Draw on clay in the autumn, and spread it on the land, so that the frost will pulverize and make it firm. The quantity depends on the soil. If very sandy, more will be required: I think about forty to fifty good loads per acre will be enough. One hundred bushels of lime ought to be put to the acre once in fifteen years. Under this process, and with proper manure, I will warrant a good crop of wheat, or any other crop you please.

CLAY LOAM SOILS, OR FIRST RATE LAND.

If the land is in a rough state, full of stones, &c.—I do not mean new land, stumpy—but full of thistles, and weeds and trash, as farms in general are, the same plan must be followed, the stones being taken off, and the land brought into a proper state to stock with wheat, as noticed before. Stock with eight or ten pounds of clover seed, so as to provide a ley.

TO COMMENCE A ROTATION OF CROPS.

Sow, first year, peas, corn, potatoes, or any other roots. On land treated in this way with long fresh manure, I have this year obtained the first premium on peas and potatoes. It will stand the drought better than any other way that I have tried. Second year, spring wheat, barley, and oats. Stock with eight or ten pounds of clover seed. Third and fourth years in clover: one year cut for hay; *two* crops in the second year. Let it grow until in blossom: turn your swine and cattle in, to tramp down, but do not feed too close. Then, about the end of August, plough all under together. The manure that falls from the cattle, with the clover, will make a good coat of manure for fall wheat, to follow immediately. Ridge from sixteen to twenty feet. In this way you will get four crops in five years by one coat of manure from the barn—two of wheat, if you prefer it, or barley and peas, which are valuable crops. Sow plaster on your clover.

Thus far the extracts—to which I would add this suggestion. As the culture of root crops is progressing amongst us, and as the winter wheat crop is becoming so precarious as to render a resort to spring wheat advisable, the following course would be better adapted to our husbandry than the one recommended above.

First year.—On clover ley and long manure sow peas, corn, potatoes, and roots.

Second year.—Spring wheat, with clover seed.

Third year.—Clover, cut, and followed by turnip, or, if you prefer, let your clover grow after cutting, and pasture.

Fourth year.—Barley or oats, with grass seed and clover seed.

Fifth year.—Cut for hay.

Sixth year.—Pasture.

In this way seven crops would be obtained in six years: three of them would be decidedly ameliorating, and two particularly exhausting; while four of the six years would yield pasture in autumn.

Two objections may be started to this course:

First, that clover cannot be cut in time to get in the rutabaga in the third year. Clover, however, (cut by the 20th or 25th of June), and white turnips four weeks later than this, will do.

Second, that sowing clover and grass seed twice in the course, or rotation, is too expensive. To this I answer, that I have found the sowing of clover seed with all small grains profitable for pasture, paying for the seed besides providing clover ley for the land.

The other qualities of land described above I have upon my own farm.

STOCK AND MANAGEMENT.

Different opinions are entertained as to the most eligible kind of stock. If I should undertake to determine which is the best, I might get into a question which it would require great ability to discuss. Ayrshire breeds are good milkers, but the best that I have ever read of are the Durham, or Short Horns. It matters little, however, which you select: take deep milkers from both sides, and you are sure of success for dairy purposes.

In rearing calves, take them from the cows when from four to six days old, and feed with milk until cheese making comes on, which will be between 20th and 25th May. Then feed whey with a little shorts, or, what is better if it can be obtained, flax-seed boiled, and put a small quantity in the whey. Rear only the best calves. It is the practice in this country to sell the best to the butchers for a few shillings, and keep the poor ones; and this is the way that our stock deteriorates, and becomes almost worthless.

Cows, horses, and sheep should not be put together in one field, because the horses and sheep bite closer than the cow, and select the sweetest grasses. It is supposed by some, and gravely argued too, that letting stock run out in winter is the best way. But good sheds to lie under, and plenty of litter to lie upon, is far better. It has been maintained that wages are too high to admit of housing or stalling in this country or province. But on fair trial it is proved to a demonstration that housing or stalling is a far superior practice to that of letting the big and the little run together; because the stronger gets the best of the food, while the weaker are driven from place to place by the strong; the consequence being that when spring comes, the small are too poor to live, and indeed as often die as live. By more judicious management, by feeding with cut straw and roots, in stalls, this difficulty is obviated, and the plan is every way superior to that followed in general by feeding hay and straw *whole*.

The cow should be fed somewhat extra before calving. For a week or so bran mashes should be given, with roots and hay.

Sheep should engage more attention than is in general given them. Most people feed with hay and straw only, and when spring comes the flock is so poor that the fleece is almost worthless, as well as deficient in quantity: whereas, if fed with roots and kept better, the fleece would be almost double in weight and treble in quality.

The horse, the noblest of all our animals, and most useful, is too often poorly fed; not that they are generally kept on insufficient food, but that they get it so irregularly, and that the hay is fed to them whole. It should be cut to chaff by machine, mixed with the provender, and measured or weighed to them. The horse will then eat in half of the time, and rest adequately to perform the duties assigned him.

A FARMER OF ELIZABETHTOWN.

WHEAT AND CHESS—TRANSMUTATION.

MR. EDITOR,

In your Prospectus you invite farmers to subscribe and write for the *Agriculturist*. The former I have done (and induced several others to "do likewise"). The latter I find a more difficult task.

The paper written by your Elizabethtown friend in your last number, shows that he is a practical farmer and writes from experience—the best authority—except in one case, where he infers that wheat does not turn to chess. Now, sir, you will probably laugh at me, as I have done at others for advocating the transmutation of wheat to chess, but facts are stubborn things, and I will give you one.

There was a straw found when harvesting in our neighborhood on which grew some fifty or sixty grains of wheat (I have forgot the number), and thirty-six grains of chess. For a better description I would refer you to the editor of the St. Catharine's Journal, who himself saw it, and noticed it in his paper. Like one of old, I had to feel it before I could believe, and I am satisfied there was no deception. It was kept for some time for the inspection of the curious, and I believe is still to be seen in the finder's "old curiosity shop." It necessarily follows that wheat must produce chess or chess wheat, when one straw produced both.

Since seeing the above oddity, I have been experimenting on wheat and chess. But like produces like in spite of all the ill treatment I can give them. If the cause of its turning could be discovered, no doubt the ingenuity of the age could find a cure; so that we need no longer say erroneously that wheat turns to chess.

Yours, &c. P. GREGORY.

Vine Cottage, Louth, May 14, 1850.

[We are obliged to our correspondent for the interest he takes in our paper, and shall be happy to receive further communications from him. In the *transmutation theory* we confess ourselves *unbelievers*. The support which it derives from the observation of facts, when searchingly made, will be found to be only *apparent*; while the principle, which the theory involves, is altogether incompatible with the analogies and harmony of nature. Oats, as well as Chess, have been found embedded in an ear of wheat, which to a cursory observer, would seem to imply the transmutation of the latter into the former; while the naturalist by a rigid examination is enabled to detect the accidental manner of the connexion. We have no doubt that a scientific botanist, could satisfactorily explain the case, which our correspondent adduces. Editor Agriculturalist.]

FARMERS' POSITION AND REQUIREMENTS.

MESSRS. EDITORS,

While acknowledging the receipt of the last year's volume of the *Agriculturist*, and also the first three numbers of the present volume, I cannot forego expressing the pleasure and profit I derived from perusing your useful paper. Every man, as he is tied down to a little spot of earth, must remain absolutely ignorant, without a medium through which he can obtain information suited to his circumstances in the vocations of life. This sentiment applies to every department in life, but to some departments more than others; and, as a matter of course, it applies to those departments which have the largest field of operation. On looking around, then, upon the pursuits of men, and taking necessity as our guide, what field of operation are we pointed to but that which may *emphatically* be said to sustain life? It has been truly said, that a knowledge of the sciences alone will not help a man to live. No, I answer, nor yet a knowledge of the arts alone, but a knowledge of both, combined with physical power, will help a man to live, and thrive too. Speaking of agriculture, which produces the staff of life, the mind is led to ask, what does it embrace? I answer, both art and science. Some men who are trying to climb to the temple of Fame, with no better foundation than a few musty manuals, and supposing that they have monopolised the whole circle of the sciences, may perhaps look down from their proud eminence, with surprise and disdain, at such an idea; but tarry a moment before you proceed.

The earth with all its productions exist, and are governed by well directed laws, both absolute and relative; the earth and its products are connected with agriculture, therefore it embraces natural philosophy. The influence good and bad exerted upon agriculture, by the conformation of various strata and soils, embraces geology. The matter of the earth, which contains the essential principles of vegetation, embraces chemistry. The calculations, computations, &c. necessary in well organized agriculture, embrace mathematics. The working of the various implements used in husbandry to keep them in proper order, and to work them to advantage, requires some knowledge of mechanics. The management of stock, which is indispensable in farming pursuits, demands at least some knowledge of anatomy and physic. We might also say there is full scope for the florist, the horticulturist, and the botanist. But how foolish am I to stop here enumerating one thing at a time in full detail, while agriculture embraces every thing under the sun!

But a question has often sought—nay demanded a direct answer. Although agriculture embraces all the above branches, and more, are they all absolutely essential to its prosperity? I answer, I know not how to dispense with any of them. Well, then, for the medium. Your efforts, gentlemen, are praiseworthy, and long may those efforts continue to bless community! but will those efforts suffice to furnish the medium? No doubt they will, if agriculturists by means of these can be taught one thing, and that is, their *proper position* in society. Why, I ask, is the farmer to be called a mere creature of toil, any more than the mechanic? Why less capable of filling important and responsible offices in the state, or in trade, than the merchant and the lawyer? Why are the farmers' sons or daughters to be put off with the mere skin and bones of education, any more than the children of a prince?

It is necessary that farmers should cultivate a feeling of self-reliance, and bring to their aid the various means of extended knowledge in bringing out the great resources of the soil. A suitable education would prevent their being subjected to impositions from other classes, and consequently promote their own interests and those of the country.

D. G. FLETCHER.

THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.

The Directors of this national society, to which the agriculture of the civilised world is deeply indebted, have decided that *Tenant farmers* shall be admitted members thereof at the reduced charge of 10s. per annum. This will no doubt contribute materially to the already great influence and usefulness of the Society,—"Of the benefits of which (as the *Scotlish Farmer* observes) to the agricultural industry of Scotland, it is unnecessary to speak. Its district shows and competitions,—its valuable publications—its premiums and prizes; and, we may add with reference to later times, its Veterinary College—its Chemical Department—and the speeches and discussions at its periodical meetings,—have had a powerful influence in stimulating improvement; and in fostering and encouraging that spirit of enterprise by which so great and such rapid advances have been made in every department of rural economy in this country during the last fifty years. It set the example for, and gave rise to, our various local clubs and associations, and it is acknowledged also, to have given origin to the Agricultural Society of the sister kingdom—a society which, in many respects, speedily surpassed its parent, and which has already been of essential service to the Agricultural industry of Britain.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The annual exhibition of this important national society will take place this year at Exeter, about the middle of July. In 1851 the exhibition will be held in London, forming a part of the proposed display of the industrial production of the whole civilized world. The meeting for 1852 will be holden in the South Eastern district, comprising the counties of Kent, Surrey, and Sussex. Already the principal towns in those counties have begun to vie with each other to obtain the show, and large sums of money have been subscribed. This society we are glad to observe is in every respect in a most healthy condition, maintaining a state of constant progression.

THE GREAT PLOUGHING MATCH.

This celebrated trial of skill, in one of the most ancient and valuable departments of human industry, took place on Friday, May 3rd, on Mr. John Walsh's farm, near the pleasant and flourishing village of Thornhill. The weather was, fortunately, most propitious; and it was evident, early in the morning, from all parts of the surrounding country, that a great turn-out was about to take place. The contest was between twenty ploughmen of each of the townships of Scarborough and Vaughan, for a purse of £100. Our readers will remember that a similar match took place last spring, between Whitby and Scarborough, for the same amount, the latter coming off victorious. The first getting-up of the thing originated, we believe, in Whitby, with Peter Perry, Esq., M.P.P., who cannot fail to derive much satisfaction from the conviction of having given rise to a popular impulse, which cannot, in its results, be otherwise than highly beneficial to the country. From the above sum, £50 were to be set apart by the winner, for the purpose of accepting a challenge that any other township might offer. Vaughan took up the gauntlet. Hence originated the sharp and honorable contest which we are about briefly to describe.

When we arrived on the ground, about eleven o'clock, the work had commenced, and there could not have been less than three thousand persons present, and the number kept gradually increasing.

The names of the ploughmen from each township are as follows:—

SCARBORO.	VAUGHAN.
J. Patton,	John Torrance,
John Cash,	Duncan McLean,
John Patterson,	Samuel Musselman,
Thomas Crone,	Archibald Campbell,
James McCowan,	John Campbell,
Joshua Sisley,	David Jeffrey,
Robert Gilchrist,	James Somerville,
William Weir,	Duncan Campbell,
William Wakefield,	Joseph Frank,
John Crone,	James McNair,
P. Flemming,	William McNair,
G. Burke,	Robert Thompson,
Walter Hood,	Allan McLean,
William Hood,	Peter Frank,
James Weir,	Henry White,
John Crawford,	David Smelie,
George Evans,	Walter Dalziel,
A. Thompson,	John Lawrie,
John Wakefield,	George Charlton,
John Weir.	John Cumpleton,

JUDGES.

For Scarborough.—J. Gibson, Robert Ral, John Weir.

For Vaughan.—George Harrison, Robert Blair, Robert Beath.

UMPIRES.

Archibald Cameron, *Toronto;* Benjamin Jennings, George Anderson, *Whitby.*

The field selected might, upon the whole, be considered well suited to the purpose. The surface was pretty level, the soil a heavy loam, tolerably uniform and free from either stumps or stones. The principal drawback consisted in the thinness and weakness of the sod; the field, we understood, having been down in timothy and clover only one year, and in many places the surface was almost bare. The competitors were distributed alternately, in groups of three each, belonging to the same township; so that the effects of any supposed or real differences, of a mere local character, in the field, would be balanced equally. The field was in lands, or ridges, of the ordinary width, and nearly flat. About half an acre was allotted to each ploughman. The whole forty ploughs were of iron, on the principle of the *Scotch swing:* several of them were imported from Gray's celebrated manufactory in Scotland, and the rest were made in the Province. As to the high value and great capability of this variety of plough, when directed by competent hands, there can be no difference of opinion among persons qualified to judge. The work made upon this occasion fully attested the efficiency of the implement, as well as the skilfulness of the operator. Believing, as we do, that the principle upon which the Scotch swing plough is constructed, is that which at present approaches, in practice, the nearest to abstract perfection; yet we are aware, what every practical farmer must be fully conscious of, that to suit the varying soils, seasons, and other changing circumstances of operative husbandry, the plough, in its construction, must receive modifications adapted thereto; and that, after all, *experience* must decide which variety is best suited to any special case.

Our limits forbid minute criticisms on the work performed. It was soon obvious that the Vaughan ploughmen had acquired that peculiarity of style—if we may so speak—which so distinguished the Scarborough ploughing in the competition with Whitby last year, and which gives to the work, as a whole, a character of graceful uniformity. A straight furrow, with strict observance of the true proportion between depth and width—a matter which most of the ploughmen, in the present instance, evidently understood—gives to the work that precise uniformity of inclination and appearance which renders exact ploughing so captivating to the eye. In this important respect, the late match was a decided improvement upon its predecessor. If we were disposed to find fault, it would be, that the ploughing was scarcely deep enough; since it is now generally acknowledged that, upon stale soils at least, *deep* cultivation is one essential condition of increased crops. We should think that the average of this ploughing would not exceed six inches. The judges, of course, in forming their decisions, would have respect to depth. Long before the completion of the work, it was evident the competition would be a keen one, and this feeling

seemed to gain strength as the ploughing advanced.—The judges, after much investigation and deliberation, declared in favour of Scarborough; but this adjudication was couched in such terms as to pay the highest possible compliment to Vaughan.

The mode of procedure adopted by the judges was to classify the ploughing, and to award the palm of victory to those having the largest number of lands *first-rate*. On counting up, Scarborough was found to have a majority of one over their competitors. It was, we believe, universally admitted that the best work was performed by a Vaughan ploughman, Mr. Walter Dalziel. A considerable number of the competitors were young men, native-born Canadians.

Soon after twelve o'clock, the Governor-General, accompanied by Colonel Bruce, F. Jackes, Esq. (Warden of the County), E. W. Thomson, Esq., R. L. Denison, Esq., &c., &c., arrived on the ground, and His Excellency was received with loud and hearty cheers from the immense concourse of spectators then assembled. His Lordship proceeded to inspect the work, going round the field on foot. The shrewd and practical remarks upon the ploughing made by His Excellency, showed a minute acquaintance with practical as well as scientific Agriculture.

In this instance, we shall break through the rules which our restricted limits compel us to observe in regard to the usual festivities of our agricultural gatherings, and present our readers with an account of the Dinner, copied from a city cotemporary:—

THE DINNER,

announced for three o'clock, did not commence till nearly half-past four. A long temporary building had been erected for the purpose, on the premises of Mr. Shepardson, Thornhill. Walls, roof, and the three rows of temporary tables were made of the one material—inch boards—the table boards, however, were thicker. Three hundred and fifty-two persons sat down at first and there was a tremendous rush of spectators outside, pressing up against the fragile tenement in a way that threatened to move it out of its place. In addition to this, divers juveniles perched themselves on the slab-like roof, and the pressure of their bodies, by the law of gravitation, ever and anon, caused a very alarming inflection of the inch boards, which threatened to give way to the force and let down the anxious younkers upon the heads of eaters, speakers, and auditors. But fortunately no calamity resulted from this somewhat alarming state of things. E. W. Thomson, Esq., president, supported on the right by His Excellency Lord Elgin, F. Jacques, Esq., Warden, and two aides of the Governor General; and on the left by Col. Bruce, the Hon. J. H. Price, Hon. F. Hincks, Capt. Æ. Irving, J. W. Gamble, Esq., and G. Buckland, Esq. The following toasts were given from the Chair:—

The Queen.

Prince Albert and all the Royal Family.

In rising to propose the health of His Excellency the Governor General, the President offered some well-timed remarks upon the judicious munificence of His Excellency in giving prizes to the pupils who had attained the highest proficiency in Agricultural Chemistry at the Normal School—prizes which he has given on two several occasions. He then gave

His Excellency the Governor General.

The toast having been received with great enthusiasm, His Excellency rose to reply;—

His Excellency said he was truly grateful for the manner in which this toast had been received. He was truly happy to witness the speeimen of excellent ploughing, and hewas very much surpised to witness the excellent qualityof the cattle. He was highly gratified to have an opportunity of meeting this large and respectable assemblage of the yeomanry of the country. Wherever he had been he had always been favourable to re-unions of this kind, and there was one point in particular that ought to be attended to, and that was, they should always terminate with a dinner. (Laughter.) When the worthy President gave him the invitation he said nothing about the dinner; but he had soon found it out. He saw their placard, and he there discovered three inducements to attend this meeting. He knew he should find good company, good cheer and he should find no politics. (Cheers and laughter.) It was most important that the agriculturists, whose occupation does not, like those of some others, throw them together, should have opportunities of this kind to meet together to compare notes, and talk over the results of their experience, and they can never do this so well as after a good dinner. Every man's heart was cheered by a good dinner, in this he did not except teetotallers.—(Laughter.) Agriculture, when properly pursued, was one of the most generous and interesting occupations. In most other occupations, when a man makes a discovery he bottles it up, takes out a patent to secure the benefits of the discovery to himself; he did not blame him; but the man who makes a discovery in Agriculture, who causes two blades of grass to grow where but one grew before, had justly been called a benefactor; he has no objection to call his friends around him and tell them his discovery, that they may go and do likewise. (Great cheering.) There was never a time when so much was being done for the improvement of agriculture. In England, he believed, there was not a County in which persons of wealth were not engaged in making experiments, spending their money in testing results for promoting the improvements of Agriculture, for the benefit of others,—that others may pluck the flowers without scratching their fingers with the thorns A great work had been commenced, from which he argued the best results; that leviathan of the press, the *London Times*, had appointed two gentlemen to go through the country and report upon the state of Agriculture. He did not know their names but they were evidently thoroughly acquainted with Agriculture.—He had been much struck by reading one of these recent reports describing the farm of Mr. Huxtable, a distinguished agriculturist. His stables, where he had stalls in which he keeps his stock, from the day of their birth till they are ready for the shambles—his tanks for collecting and preserving liquid manure—his engines and machinery by which with the power of one man he was enabled to cut and prepare food for his numerous stock, were all described with accurracy. He did not mean to say we could follow this example in all its details; or that it would be prudent to do so, for the conditions of economy differ in a country where land is cheap and labour dear. But we ought to keep our eyes open and avail ourselves of all the improvements that might be profitably applied here. He would not detain them, but he had a toast to propose. It would be admitted

that a straight clean furrow was the basis of all good husbandry. In a country like this it was important to our well-being. He should propose a toast, "the men who drew these fine furrows." (great cheers.) He was thankful that he was not judge, he had to propose the health of them all, successful and unsuccessful. As he was going round the field some one remarked to him that the ploughmen were all Scotchmen, but another replied they were the sons of Scotchmen, and in this country the sons always beat their fathers. He was pleased with that remark, and he would tell them why, he too had a son born in this country, and if he did nothing better, he hoped he would beat his father. His Excellency then gave

The Ploughmen.

The President said he had been requested to state that the judges, after great difficulty, had come to a decision; he believed they had found it far more difficult to decide, than the judges did last year at the Whitby match. The Scarboro' men have nearly been beaten! The President said he wished he could say they had been beaten for one reason—because he thought it would prove that we have better ploughmen in Canada than any where else in the world. Scarboro' had done remarkably well at Whitby last year, and if Vaughan had beaten now, it would show that great improvement had been made during the year. Scarboro' has won the day; only just won, they came very near been beaten.

The Army and Navy.

Col. Bruce returned thanks on behalf of the army.

No naval officers being present, Capt. Irving was called upon to reply on behalf of the navy. He was glad the President had made an excuse for calling one for himself. He had never held a commission in the navy, but he had known many jolly fellows who belonged to the navy. He then complimented the ploughmen for the excellence of their workmanship, and Lord Elgin for his condescension for appearing there amongst the farmers. He warned the farmers of the lawyers, and to keep out of the storekeeper's debt; to leave disputes to arbitration, and they would become richer and better neighbors.

The Successful Competitors.

The President in giving this toast said the successful competitors had shown a great deal of skill; but they had been very closely matched.

The Unsuccessful Competitors.

The President then read the following letter from Mr. Perry excusing his absence on the ground of sickness.

Whitby, 3d of May, 1850.

To the President, Directors, Contributors to the Respective purses, and Ploughmen of the Townships of Scarborough and Vaughan, assembled at the great Ploughing Match to come off this day in Markham.

Gentlemen:—

I am extremely sorry that severe indisposition compels me to forego the anticipated pleasure I had promised myself, on meeting and joining heart and hand with you, in the interesting proceedings of the day. Firmly believing that such exhibitions and displays, are calculated to serve and promote the great—I may say paramount interests of Agriculture, they have (like all other hopes of the kind) and continue to receive my best wishes, and my motto and sentiment is, "May the honest Ploughman never tire."

I have the honour, Gentlemen.

To be your obedient servant,

PETER PERRY.

He then proposed the health of

Peter Perry.

F. Jacques, Esq., replied on behalf of Mr. Perry. He said Mr. Perry was the originator of these ploughing matches. He looked upon Mr. Perry as a benefactor of his country, and as such he felt he would be hereafter regarded. Mr. Perry had looked for the great sources of Canadian wealth; and seeing that Canada had no gold mines, that her soil was her richest mine, he had discovered that to improve her agriculture was the way to make her wealthy; and the means he had taken of doing so was in originating these ploughing matches. He (Mr. J.) begged to return thanks on Mr. Perry's behalf for the toast that had been drunk.

The Manufacturing interests of Canada.

Mr. G. W. Gamble replied. He spoke of a consuming population as necessary for the permanent prosperity of Agriculture; and the means of obtaining it "encouragement of the manufacturing arts." England he said was determined to be the workshop of the world; and to make us grow wheat to feed her population at the same rate as that grown by the serfs of Russia.

The Mercantile interests of Canada.

Hon. Francis Hinks replied. He said he was almost afraid to rise on behalf of the Commercial interests of Canada after one of the speakers had warned them to beware of the store-keepers. Still he held that the Commercial interests conferred great advantage on the Agricultural. They obtain for you what you want, and also provide the best market for your products, and find out the cheapest mode of getting them to that market. Manufactories were springing up in Canada and he rejoiced to see them. A commercial class were absolutely necessary in every country, for there was always a great many articles it was absolutely necessary to import. You have got to pay for these articles in some way, and it must be done either by Agricultural productions or manufactures. As Canada cannot hope to compete with England where labour is cheap and machinery in great perfection, we must pay for our imports in Agricultural productions. If we established a system of protection, the farmer would have to pay a great deal more for the articles he required. He had lately had a conversation with one of the largest manufacturers in Canada, Mr. McKechnie of Cobourg, who told him (Mr. Hincks) that he (Mr. McKechnie) wanted no protection. The honourable gentleman then referred to the great improvements that have taken place in the communications of the country, that vessels now take flour from the port of Toronto to Halifax direct. The worthy President had referred to the prizes given by His Excellency to the students of the Normal School; he would mention another instance of the judicious liberality of His Excellency; he referred to the offer of His Excellency for the best essay on the influence of the Canals on the Agriculture of the Province. These essays would have a great effect in diffusing correct information respecting our internal communications. We should soon be able to carry flour to England for the same rates it cost a few months ago to carry it to Montreal.

The Press of Canada.

The President said they owed a great debt of gratitude to the press; not to the agricultural press particularly, but to the general press which brings the intelligence of the state of the markets, and all other information respecting events that transpire in all parts of the world. He hoped every farmer would patronize the press by becoming a subscriber for a public journal.

Mr. McDougall had not expected to be called upon for a speech to this toast as he observed Mr. Buckland, who was also connected with the agricultrual press, on the platform. At this late hour, and after so many excellent speeches, and especially after the able manner in which the President had set forth the merits and capabilities of the Press, he thought a speech in reply might be very well excused. One of the benefits of the press however was this—that on occasions of this kind when interesting and instructive speeches were made exciting the admiration of all, such as they had just heard, but would probably in a little time forget, the Press gathered up and preserved, to be read and studied at leisure, the best and choicest portions. This its representatives would endeavour to do to-day. He concluded by thanking them for the kindness with which they had received the toast.

The Agricultural Association of Upper Canada.

Mr. Buckland replied. He said it would ill become him, at that stage of the proceedings, to make any lengthened remarks. He believed there was not one here who was not fully acquainted with the object and nature of the institution. Owing to the liberality of the Government last year, the Association was now free from debt; and he hoped a grant would be voted by the Legislature this year, which would enable it to go on in its course of usefulness free from debt. He had great pleasure in witnessing the excellent ploughing, and was enabled to bear witness that an obvious improvement had taken place since the Whitby match last year. We might go in a kindly and generous spirit of rivalry, till this province would become, if it is not already, one of the brightest jewels in the British Crown.

The Judges.

The Township that gives the next Challenge.

Mr. McNair then announced that Vaughan would again take up Scarboro,—if no other township does so—the match to come off some time between the 1st of April and the 15th of May of next year.

The announcement was received with great applause.

Lady Elgin and the Fair of Canada.

The President remarked that they should not forget those whom they had left at home—at their fire-sides.

His Excellency the Governor-General returned thanks. He thought the President had made the only mistake he had made during the evening, just now. A friend of his had given his son this advice—not to go into good company, as the danger was not of getting into bad company—he was too much of a gentleman for that—but of getting into good company. He thought Lady Elgin would think that they were getting into good company. His Excellency begged to propose the health of the President, Mr. Thomson. The President had alluded to his (Lord Elgin's) prizes. If any good resulted from these prizes, it was in always having had Mr. Thomson for judge. He would rather give a prize than have to judge between the merits of the competitors. His Excellency concluded by proposing the health of the President.

The President said he certainly never rose to respond to a toast with such a sense of gratitude as on this occasion. His Excellency had taken a most flattering notice of his (Mr. T.s) poor exertions in the cause of agriculture. He begged to return his most sincere thanks for the honor done him. He hoped they would continue not to benefit themselves only, but also posterity. The list of toasts, which had been long, was now got through; and he hoped they would separate with the same good feeling that brought them together.

Three cheers were then given for the Queen.

Three cheers for Lord Elgin.

Three cheers for the infant Bruce.

Lord Elgin.—May he (the infant Bruce) always be worthy of his name.

The company then separated.

ANNUAL EXHIBITION OF THE PROVINCIAL AGRICULTURAL ASSOCIATION.

The Executive Committee appointed by the Agricultural Association of Upper Canada to manage the Annual Exhibition, held at Kingston, on the 18th, 19th, 20th, and 21st September, 1849, in making up and closing the Accounts of the said Exhibition, beg leave to

REPORT:

That having carefully examined the Treasurer's accounts—both as regards the money received and the expenditure thereof, as set forth in his detailed account of disbursements—and being satisfied of the correctness of the same, the abstract recapitulation sent herewith will show that the amount of receipts from all sources was £1,325 7 10

and the sum expended £1,236 16 5½

leaving a balance of £88 11 4½

to be carried to the general funds of the Association. This sum, with the money said to have been promised by other Districts, and not paid, for the year 1849, viz.: Simcoe District, £10; Malden and Anderson, £5; Bytown, £10; Niagara District, £25; Johnstown District, £40—will make together, if recovered, the sum of £178 11s. 4½d., forming the nucleus of a reserved fund for the Association, which we recommend should be increased from time to time, until it shall amount to a sum not less than £500, supposing that bad weather, or other unforeseen accidents, may sometimes occur to prevent the income from the sale of tickets at the Show gates being sufficient to cover the contingent expenses.

Much of the expenditure stated in this Report may be hereafter saved by establishing a code of instructions for the guidance of the Executive Committee appointed in the counties wherein Exhibitions are held, and thereby give means for awarding higher premiums to every branch of our Provincial products.

Great consideration should be had in laying out the Show Ground, and erecting the necessary buildings and sheds to the full dimensions required. Although we, at Kingston, did enlarge upon the scale of grounds and buildings put up in former years, yet we are of opinion that, in future, if the area of the ground (ten acres last year) be not enlarged, the size of the buildings and offices should be made at least one-third larger than the accompanying plan.

Entrance gates, heretofore, have been too few to admit foot passengers. Instead of one gate, there should be at least two, with a ticket office about the centre.—In addition to the doorkeepers, the entrance doors should be superintended by some persons of superior authority, to keep order and prevent confusion.

A separate entrance should be made for carriages and horses, at a greater distance than heretofore from the foot passengers' gate, with a ticket office attached; and no carriage tickets should be sold at the foot passengers' office. We also think it would add to the profits of the Association, as well as be more satisfactory to the public, if the Show Grounds were opened from eight o'clock in the morning until sunset each day.

All entrances of animals or articles intended to be shown for prizes, should be made at least seven days previous to the first day of the Show, at a charge of sevenpence halfpenny each, free of postage; afterwards the charge of entrance to be increased, to prevent late entries. The entrance books should be closed at sunset on the day previous to the Show. A distinct badge should also be provided for persons bringing property to the Exhibition; said badges to be given at the time of making the entry. If the entrance be requested by letter, the badge should be then put up, with the owner's name attached, ready for delivery when called for.

Labels should be carefully attached to all animals and articles exhibited, duly numbered in their respective classes. If for sale, the price should be marked thereon, particularly on implements of husbandry. No objection can be made to the owner's or maker's name appearing on the label.

To make it convenient for the judges, a person should be placed in charge of each class of animals and articles upon the ground, who shall, from the tickets, make a complete list of the class in his charge; from which list the judges can proceed to examine, and enter upon their book accordingly; and nothing can be adjudged that is not given to the judges by the person in charge. One book will thus agree with another, and of course the whole of said books will exactly correspond with the Secretary's general entry book.

We recommend that the premium list, with rules and regulations for conducting the Exhibition, shall be prepared and printed at the Head Quarter Board, and made ready for delivery in the month of June, and that the Secretary be directed to send them forth to the several Districts immediately afterwards, with such further instructions to the Executive Committee where the Show is to be held, as may be required for making all necessary preparations for holding the Annual Exhibition.

Our public Dinner did not succeed in anything near the number expected; owing, probably, to the great communications of travelling being by steamboats, and persons visiting the Show coming and returning home on the same day. Therefore, the Executive Committee where the Exhibitions are held must manage the Dinner according to circumstances, and to the best of their judgment, without its being connected with the expenses of the Exhibition.

From what is herein before remarked, relating to the travelling community moving quickly from place to place in the numerous daily steamboats, and in the absence of the facility of travelling on railroads in the winter season, the Committee strongly recommend that the Annual Meeting of the Head Board of the Association should be held in the month of June, at which season of the year a greater number of members would be enabled to attend without much loss of time.

We recommend that an application be made to the Government for an annual grant of £500, for the purpose of carrying forward this great National Institution, and that the money be paid in the month of August in each year, to the Institution, as well as the agricultural grant to the counties. This would give time for the respective counties to make their subscriptions to the Provincial Association before the Show; thereby enabling the officers of the Association to ascertain the full amount of their funds, and to cause the premiums to be made accordingly and paid on the spot; always supposing that the tickets sold at the entrance gates will exceed the expenses for inclosing the Show Ground, erecting the buildings, and all other contingent expenses.

Diplomas have, probably, been rather too profusely distributed to give them that high distinction intended in the public mind. Such should only be granted for some rare specimen of great ingenuity,—new inventions, or something very superior. Better give a small donation in money for unforeseen occurrences, than issue diplomas on trifling occasions.

The following books and papers are forwarded herewith, for the purpose of being lodged with the records of the Association, viz:—

1. Local Treasurer's Account Current.
2. Minute Book of Executive Committee.
3. Plan and Specification of Show Ground.
4. Book of Entries of Animals and Articles for Exhibition.
5. Judges' Books of Awards of Premiums, (22 in number.)

That the Secretary of the Provincial Agricultural Association should be instructed to complete the best record of the Institution he can collect from such documents as can be procured, and the best information to be had in the localities in which Exhibitions have been held up to the present year; and that this record be put into the hands of the Executive Committee for the time being, for reference; and that from the proceedings of such Executive Committees, the Secretary of the Association shall make the annual addition to such record.

The Committee further recommend to members of County Societies, Judges, Delegates, and others entitled to free entrance to the Exhibition, to introduce themselves on their arrival at the Show, by delivering their personal cards of address to the Secretary, who will enter their names in his book, and furnish them with badges accordingly.

Ploughing Matches have not hitherto succeeded or proved advantageous at the Provincial Cattle Shows in the month of September. The weather in that month is invariably too dry for ploughing sod land—consequently the Farmer's skill cannot be fairly tested. Moreover, the withdrawing so many useful Farmers to attend the Ploughing Matches, deprives the Directors of their valuable assistance upon the ground; therefore, it would probably be best for the encouragement of the useful art of Ploughing, to leave the Ploughing Matches entirely in the hands of the County Societies, who should endeavor to create an emulation for good Ploughing, by bringing forward the Ploughmen of one County to compete with the Ploughmen of another County, or one Township against another Township, in the fall of the year, after the first October rains, at which time the work can be well executed with dexterity, science, skill, and satisfaction to all concerned.

All which is respectfully submitted.

J. Marks,
Chairman.

Executive Committee Room,
Kingston, Canada West,
April 24th, 1850.

AGRICULTURAL ASSOCIATION OF UPPER CANADA.

A Meeting of the Directors and Members of this Society was held pursuant to public notice, on May 20th, at Elgie's Hotel, in this city. J. B. Marks, Esq., of Kingston, Vice President, in the Chair. The Secretary having read the report of the local Committee for the past year, the following resolutions were carried unanimously.

1. Moved by Mr. E. W. Thomson, and seconded by Mr. R. L. Denison,

That the very satisfactory report of the Kingston Executive Committee now read, be received and entered on the minutes of proceedings, and that the warmest thanks of the Association be given to that Committee, for the efficient and satisfactory manner in which they discharged the important duties entrusted to them at the last Exhibition.

2. Moved by Mr. W. McDougall, and seconded by Mr. J. Fitzgerald,

That the thanks of this Meeting be given to Messrs. E. W. Thomson, R. L. Denison and George Dupont Wells, the Finance Committee appointed for settling the outstanding liabilities against the Association, for the valuable services which they have rendered.

3. Moved by Mr. R. L. Denison, and seconded by Mr. Jas. Fitzgerald,

That the thanks of this Meeting be given to the Committee appointed to draft the Bill now read for establishing a Board of Agriculture, and the better management of Agricultural Societies in Upper Canada; and that the said Draft be approved, together with the Memorial accompaning it, and that fair copies of the same be made and submitted through the proper channels, to the several branches of the legislature.

It was also resolved, That E. W. Thomson, Esq., be requested to submit the said Bill and Petition to Her Majesty's Provincial Government, for the purpose of having the measure brought immediately before Parliament.

Mr. Fitzgerald, a member of this Association, having laid before the Meeting a scheme for colonization.

It was resolved, That this Meeting highly approve of the plan, and most cordially recommend it to the attention of the Government, conceiving it to be exceedingly comprehensive and a very efficient mode of settling the waste lands of the Crown; and when carried into effect in the way proposed, will prove highly beneficial to the country, by filling up the waste lands with a hardy and useful race of people, that will long remain faithful and loyal subjects of the British Crown.

The Directors then adjourned, to meet again at Niagara, on Tuesday, June the 4th, for the purpose of completing the Local Committee and making arrangements for the Exhibition in September next.

DRAFT OF AN ACT

To establish a Board of Agriculture, and to provide for the better organization of Agricultural Societies in Upper Canada.

WHEREAS the improvement of Agriculture is an object of the first importance to the people of this Province, and whereas the establishment, by law, of a Board of Agriculture in Upper Canada, to collect and disseminate statistical and other useful information concerning the agricultural interests and resources of the country, and the making provision for the better organization of Agricultural Societies in that part of the Province, would greatly promote such improvement, it is expedient to repeal the laws now in force in Upper Canada, relating to Agricultural Societies, and to consolidate such provisions thereof as may have been found effective, with the amendments which the establishment of the said Board will render necessary:—

Be it therefore enacted, &c., That the Act of the Legislature passed in the eighth year of Her Majesty's reign, entitled "An Act for the encouragement of Agricultural Societies and Agriculture in Upper Canada," and such parts of the Act of the Legislature passed in the 10th and 11th years of Her Majesty's reign, entitled "An Act for the incorporation of the Agricultural Association of Upper Canada," as are inconsistent with this Act be, and the same are hereby repealed.

BOARD OF AGRICULTURE.

I. *Be it enacted*, That a Board of Agriculture may be established in Upper Canada, to consist of ten members, of whom five shall be a quorum.

II. *And be it enacted*, That the Inspector-General of the Province, and the Professor of Agriculture in the University of Toronto, shall be *ex-officio* members of the said Board.

III. *And be it enacted*, That the Chairman of the said Board shall be appointed by the Governor in Council, from among the members of the Legislative Council or Legislative Assembly; and if appointed from the members of the latter body, he shall not, by accepting the said appointment, vacate his seat in Parliament; and the person so appointed shall also be a member of the Board of Registration and Statistics.

IV. *And be it enacted*, That the other seven members of the Board shall be chosen as follows: the Directors of each County Agricultural Society in Upper Canada, organized according to the provisions of this Act shall, at their first regular meeting, next after the Annual Meeting of the Society, elect Seven persons residing in the vicinity of, or at convenient distances from the City of Toronto, to be members of the said Board of Agriculture, and their names shall be entered in the Journal of the Society; and the Secretary of the Society shall, within one week thereafter, transmit to the Provincial Secretary, a list of the said names, certified by the President of the Society, or in his absence, by one of the Vice Presidents, and also by the Secretary, to be a correct list of the names of the persons so elected to be members of the Board; and the Provincial Secretary shall, in the month of June next, after he shall have received six County lists, cause to be made a full list, to be called the "Board List," of all the names upon the several County lists, setting opposite each name the number of County lists on which the same shall be found, and placing those receiving a higher number of votes above those receiving a lower number of votes, and the seven persons who shall have received the greatest number of County votes, shall be members of the said Board of Agriculture; and if it shall be necessary, in order to fill up the Board, to choose between persons having an equality of votes, the Provincial Secretary shall make such choice, and shall immediately notify the several members of their election, and name the day for their first meeting. And the said Board list and County lists shall, after the election of the first Board, be transferred to the Secretary of the Board of Agriculture, and together with all future lists shall at all times, during office hours, be open to inspection.

V. *And be it enacted*, That any person elected to be a member of the said Board, shall be liable to serve during his term, unless he shall signify his refusal to act, by written notice, to the person who shall have notified him of his election, within ten days after receiving such notice of election; and in case of any such refusal to act, the person next highest on the Board list shall fill the vacancy caused thereby: provided that if, at the first, or any future election, so many refuse to act that a full Board cannot be had from the persons nominated by the County Societies, it shall be lawful for the Governor in Council to fill up the Board.

VI. *And be it enacted*, That the retiring Officers and Directors of the County Societies, at the next Annual Meeting but one of the said Societies, after the eletion of the first Board, and at each Annual Meeting thereafter, shall elect two persons, in the same manner as is herein-before provided for the election of the first members, and shall transmit a list of their names, properly certified, to the Secretary of the Board of Agriculture; and the two persons who shall have received the greatest number of county votes (or, in case of an equality of votes for more than two persons, the two whose surnames begin with letters standing highest in the alphabet), shall be members of the said Board, and their names be placed at the top of the Board list; and the two members of the Board standing lowest on the Board list shall thereupon retire, unless re-elected.

VII. *And be it enacted*, That if any member of the Board, elected as aforesaid, and who shall not, within ten days after notice of his election, have refused to act, as herein-before mentioned, shall neglect to attend the regular meetings of the Board twice in succession, without reasonable excuse, of which the Board shall judge, he shall, for every such neglect, forfeit and pay to the funds of the Board, the sum of Five Pounds currency.

VIII. *And be it enacted*, That it shall be lawful for the said Board, at any meeting from which the Chairman shall be absent, to appoint one of their number Chairman *pro tempore*; and the said Board may also appoint a Secretary, who need not be a member of the Board, and he shall be, *ex officio*, Secretary of the Provincial Agricultural Association, and shall have an office in the public buildings at Toronto; or, if the Board shall think some other office more convenient, the same shall be provided at the public expense; and the said Secretary shall have charge of the books and papers of the Board, and shall perform such duties as the Board may direct, and shall receive for his services a sum not exceeding per annum.

IX. *And be it enacted*, That the regular meetings of the Board shall be held pursuant to adjournment, or be called by the Secretary, upon the advice of the Chairman, or upon the written request of any three members of the Board—in which latter case, the special object of the meeting shall be stated by the members requesting a meeting; and in all cases, besides a written notice to each member of the Board, a notice of each meeting shall be published in some public newspaper in Toronto, at least ten days before the day of such meeting; and the Chairman and members elected as aforesaid shall be entitled to be repaid, out of any funds at the disposal of the Board, their necessary expenses actually incurred in coming to, attending at, and returning from the regular meetings of the said Board; provided that the amount paid to any member, on account of such expenses, shall not exceed the sum of in any one year.

X. *And be it enacted*, That the members of the Board elected as aforesaid, and the Presidents of the several County Societies, shall be the Directors of the Provincial Agricultural Association; and the said Board shall be the Council of the Association, and may have and exercise all the powers of the Directors thereof in the interval between the Annual Meetings of the said Directors.

XI. *And be it enacted*, That it shall be the duty of the said Board to examine into, and collect information upon, such questions as concern the Agricultural interests of the Province, and to take such means as they may think best to promote those interests: and they shall prepare, yearly, a report of their transactions, together with such extracts from the reports of the County and Township Agricultural Societies, and such of the proceedings of the Provincial Agricultural Association, as the Board may deem interesting and useful to the public; and the said report, with the suggestions and recommendations of the Board, shall at the session then next ensuing, be laid before Parliament, and published in such manner as the Legislature may direct.

XII. *And be it enacted*, That it shall be the duty of the said Board to prepare, as soon as practicable, and present to the Legislature, a plan for establishing an experimental or illustrative farm, in connection with the Chair of Agriculture, in the University of Toronto, or in connection with the Normal School, or otherwise, as they may deem best; and to make any recommendations they may think expedient for extending agricultural education throughout the Province.

XIII. *And be it enacted*, That it shall be lawful for the Governor of this Province, upon the application of the Chairman of the said Board, to issue his warrant in favour of the said Board, for the payment, out of any unappropriated monies in the hands of the Receiver-General, of such sum or sums as may, from time to time, by resolution of the said Board, be declared necessary for effecting the lawful objects thereof: provided that the sums so authorized to be paid as aforesaid shall not, in the whole, exceed the sum of per annum: and provided, also, that a detailed account of the expenditure of any sum so granted shall be stated in the Annual Report of the said Board.

COUNTY SOCIETIES.

XIV. *And be it enacted*, That a County Agricultural Society may be organized in each of the counties of Upper Canada, whenever fifty persons shall become members thereof, by signing a declaration in the form of the Schedule A, to this Act annexed, and subscribing each not less than Five Shillings, annually, to the funds of the said Society.

XV. *And be it enacted*, That the object of the said Societies, and of the Township or Branch Societies in connection therewith, shall be to encourage improvement in Agriculture, by holding meetings for discussion, and for hearing lectures on subjects connected with the theory and practice of Improved Husbandry; by promoting the circulation of the agricultural periodicals, published in the Province; by importing seeds, plants and animals of new and valuable kinds; by offering prizes for essays on questions of scientific inquiry relating to Agriculture; and by awarding premiums for excellence in the raising or introduction of stock, the invention or improvement of agricultural implements and machines, the production of grain and all kinds of vegetables, and generally for excellence in any agricultural production or operation. And it shall not be lawful to expend the funds of the Societies, derived from subscriptions of membership, or the public grant, for any object inconsistent with those above mentioned.

XVI. *And be it enacted*, That the said Society shall hold its Annual Meeting in the month of February in

each year; and shall, at such meeting, elect a President, two Vice-Presidents, a Secretary and Treasurer, and five Directors.

XVII. *And be it enacted*, That the Presidents of the several Township Agricultural Societies shall be *ex officio* Directors of the County Society; and the said Officers and Directors shall and may, for the year next following the Annual Meeting, exercise all the powers vested in the County Society by this Act.

XVIII. *And be it enacted*, That the Meetings of the Officers and Directors shall be held pursuant to adjournment, or called by written notice to each, at least one week before the day appointed; and, at any such meeting, five shall be a quorum.

XIX, *And be it enacted*, That the said Officers and Directors shall, in addition to the ordinary duties of management, cause to be prepared, and shall present, at the Annual Meeting, a report of their proceedings during the year, in which shall be stated the names of all the members of the Society, and the amount paid by each set opposite his name, the names of all persons to whom premiums were awarded, the amount of such premiums respectively, and the name of the animal, article, or thing in respect of which the same was granted, together with such remarks upon the agriculture of the county, the improvements which have been or may be made therein, as the Directors shall be enabled to offer. There shall also be presented to the said Annual Meeting, a detailed statement of the receipts and disbursements of the Society during the year; which report and statement, if approved by the meeting, shall be entered in the Society's journal to be kept for such purposes, and signed by the President, or a Vice-President, as being a correct entry; and a true copy thereof, certified by the President or Secretary for the time being, shall be sent to the Secretary of the Board of Agriculture, on or before the first day of June following.

XX. *And be it enacted*, That the County Society shall receive the reports of the Township or Branch Societies, and shall transmit them, along with its own report, to the Secretary of the Board of Agriculture, with such remarks thereon as may enable the said Board to obtain a correct knowledge of the progress of agricultural improvement in the said county.

XXI. *And be it enacted*, That it shall be the duty of the said Officers and Directors to answer such queries, and give such information, as the Board of Agriculture may, from time to time, by circular letter, or otherwise, require, touching the interests or condition of agriculture in their county; and generally to act, as far as practicable, upon the recommendations of the said Board.

TOWNSHIP SOCIETIES.

XXII. *And be it enacted*, That a Township or Branch Agricultural Society may be organized in each township of any county, or in any two townships united, whenever twenty-five persons shall become members, by signing a declaration in the form of the Schedule A, to this Act annexed, and subscribing, each, not less than Five Shillings annually to the funds thereof.

XXIII. *And be it enacted*, That the said society shall hold its Annual Meeting in the month of January in each year, and shall elect a President, Vice-President, Secretary and Treasurer, and three or more Directors.

XXIV. *And be it enacted*, That the said Officers and Directors shall prepare, and present to the Annual Meeting of the Society, a report of their proceedings during the year, in the same manner as is herein-before directed for County Societies, and containing the same particulars; and shall transmit a true copy thereof, certified by the President or Vice-President, to the Secretary of the County Society, in time for the Annual Meeting thereof in the month of February.

GENERAL PROVISIONS.

XXV. *And be it enacted*, That when a County Society and Township Societies are organized in any county, it shall be lawful for the Directors of the County Society, if they think proper, to appoint the Exhibition of the County Society to be held in any township of the said county; and the Society of the said township, (or, if two townships be united to form a society, the society of the said two townships) shall not hold a show for that year, but the same shall merge in the exhibition of the County Society, and the funds of the Township or Branch Society, for that year's exhibition, shall be paid over to the Treasurer of the County Society; provided that the said Township or Branch Society shall not forfeit any right to a share of the public grant for not making a full report for such year.

XXVI. *And be it enacted*, That when the Chairman and Secretary of the Board of Agriculture shall certify to the Governor of this Province, that any County Society has sent to the said Board reports and statements as required by this Act, for the year then last previous, and shall also certify that the Treasurer, or other officer of the said Society, has transmitted to the said Board an affidavit (which may be in the form of the Schedule B, to this Act attached, and may be sworn to before any Justice of the Peace, who is hereby authorized to take the same,) stating the amount subscribed for that year, and paid to the Treasurer of the County Society by the members thereof, and by the several Township Societies of the said county, it shall be lawful for the Governor to issue his warrant in favor of such County Society, for a sum to be taken out of any unappropriated monies in the hands of the Receiver General, equal to three times the amount appearing by the said affidavit to be then in the hands of the Treasurer: provided that no grant shall be made unless £25 be first subscribed and paid to the said Treasurer; and provided that the whole amount granted to any County Society shall not exceed £250 a year.

XXVII. *And be it enacted*, That every Township or Branch Society, organized according to this act, and sending a report of its proceedings to the County Society, as hereinbefore required, shall be entitled to a share of the grant to the County Society, in proportion to the amount which shall have been subscribed by the members of such Township or Branch Society, and deposited with the Treasurer of the County Society, on or before the first day of July in each year; and the sum so deposited by any Township or Branch Society, shall be repaid, along with its share of the public grant, so soon as the said grant shall have been received by the County Society; Provided always, that not more than three-fifths of the sum granted to any County Society, shall be subject to division among Township or Branch Societies.

XXVIII. *And be it enacted*, That the Treasurer, or other officer of any County, Township, or Branch Society, who shall certify that a subscription, or any sum of money, has been paid to him, for the Society, when it has not been so paid, or who shall pay back any such subscription, shall forfeit and pay to Her Majesty, the sum of £10 for every such offence, and shall be guilty of a misdemeanor.

XXIX. *And be it enacted*, That whenever a warrant shall be issued by the Governor of the Province, in favor of any County Society, as hereinbefore provided, it shall and may be lawful for the said Governor to issue his warrant in like manner, in favor of the Treasurer of

the Agricultural Association of Upper Canada, for a sum equal to one-tenth of the sum so granted to the County Society.

FAIRS OR MARKETS.

XXX. *And be it enacted*, that it shall be lawful for the officers and directors of any County, Township, or Branch Agricultural Society, organized according to this act, to appoint a fair or market to be held, not oftener than once a month, at some specified place within their County, Township or Townships, respectively, for the sale of stock, agricultural produce, and all other commodities whatsoever; Provided that at least one month's notice of time and place of such fair or market, shall be given in some public newspaper published in the said County; or if no such paper be published therein, then in the newspaper which shall be published nearest to the said County.

XXXI. *And be it enacted*, That such Fair or Market shall be, as respects any thing that may be sold lawfully thereat, and which shall be sold in a public manner, between the hours of ten in the forenoon, and five in the afternoon, a market overt, and the usual common law incidents shall attach to such sales; Provided always, that the property in any animal, article or thing, proved to have been feloniously taken from the owner, shall not be altered by any such sale.

XXXII. *And be it enacted*, That it shall be lawful for the Officers and Directors of such Society, if they shall think proper, to fix a moderate toll to be paid by the seller of any article at such Fair or Market, for the purpose of defraying the necessary expenses of holding the same; Provided that the amount of such toll shall be specified in the public notice hereinbefore required to be given; and any Justice of the Peace, on proof of a sale at such Fair or Market, and refusal to pay the said toll, may issue his warrant against the seller, and levy the amount thereof by distress and sale of the seller's goods and chattels, as in ordinary cases of distress.

SCHEDULE A.

We whose names are subscribed hereto, agree to form ourselves into a Society, under the provisions of the Act of the Legislature, 13 and 14 Victoria, cap. to be called the "County [*Township or Branch, as the case may be*] Agricultural Society of the County of" [or Township of], and we hereby severally agree to pay to the Treasurer, yearly, while we continue members of the said Society (any member being at liberty to retire therefrom upon giving notice in writing, at any time before the Annual Meeting, to the Secretary thereof, of his wish so to do) the sums set opposite our respective names; and we further agree to conform to the rules and by-laws of the said Society:—

NAME.	RESIDENCE.	£ s. d.

SCHEDULE B.

COUNTY OF , TO WIT: } I, A. B., of the Township of , Treasurer of the County Agricultural Society of the County of make oath and say, that the sum of pounds shillings and pence has been paid into my hands since the first day of February last, by the Township Agricultural Societies of the said County, as and for members' subscriptions for this year; and that the sum of pounds, &c., has been paid into my hands as subscriptions for this year, by members of the said County Society; and that the said sums, making in the whole the sum of pounds, &c., now remain in my hands ready to be disposed of according to law.

Sworn to before me this day of A. D., 185 , } A. B.

Justice of the Peace for the County of }

DRAFT OF PETITION.

To the Honourable the Legislative Assembly, in Parliament assembled.

The Petition of the *Agricultural Association of Upper Canada*, humbly showeth—

That four-fifths of the people of Canada are engaged in agricultural pursuits, and that the advancement of this great interest, by the introduction of improved systems of practice, aided by the discoveries and suggestions of modern science, is an object of paramount importance to the welfare and progress of this country.—That the present condition of agriculture in Canada, is susceptible of immense improvement, and, therefore, all available means should be promptly brought into operation for the promotion of so valuable a purpose.

Your Petitioners understand that a *Chair of Agriculture* was recently established in King's College, but they are not aware that any means have been adopted to procure a Professor to fill such chair. Your Petitioners perceive that by the 49th clause of the New University Act, it is provided,—"That the Commissioners shall be further directed by the said Commission of Visitation to consider and report upon the "the best means of making the Chair of Agriculture recently established in the said University more efficient "and useful, and to consider and report generally upon "the best means of making the said University, as far "as its funds will permit, the instrument of drawing "forth and stimulating the latent talent of the youth of "Upper Canada."

The recommendation is good, but your Petitioners conceive that it is not the prompt mode of action the circumstances of the case require; as, in their opinion, the Chair of Agriculture should be one of the first to be filled, and that it should be sufficiently endowed to secure the services of a competent Professor, whose time might be occupied in part, in visiting and lecturing in the several counties of the Province, for the purpose of diffusing Agricultural knowledge, collecting facts and making observations in reference to the practical improvement of this important art, and otherwise "drawing forth and stimulating the latent talent of the youth of Upper Canada."

Your Petitioners beg also to call the attention of your Honourable House, to the importance of establishing a Board of Agriculture, for that portion of the united Province, called Upper Canada, and that this Board should be empowered to take such other measures as may seem to it best calculated to advance the most important of all the interests of Canada, the improvement of her agriculture. For this purpose your Petitioners beg to call the attention of your Honourable House to the provisions of a Bill introduced herewith, for promoting an improved management of Agricultural Societies, and they pray that it may be passed into a law, with such alterations and amendments as your

Honourable House may in its wisdom deem necessary.

Your Petitioners, in conclusion, beg to state explicitly their firm conviction, that it is to the practical development, by the aids of science and enlightened systems of practice, of the immense natural resources with which Providence has favoured this land, that we must mainly look amidst the constantly increasing competition of the world, for increase of wealth and progressive advancement as a people.

And your Petitioners, as in duty bound, will ever pray.

(Signed) J. B. Marks,
1st Vice-President.
T. Clark Street,
2nd Vice-President.

(Signed) Geo. Buckland,
Secretary.

Toronto, *May* 20, 1850.

MEETING OF DIRECTORS AT NIAGARA.

A meeting of Directors of the Agricultural Association, was held, pursuant to adjournment, in the town of Niagara, on Tuesday, June 4th, for the purpose of filling up the Local Committee, and commencing the necessary arrangements for the next exhibition in September. Present—J. B. Marks, and T. C. Street, Vice Presidents; E. W. Thomson, ex-President; R. L. Denison, Treasurer; Geo. Buckland, Sec'y; J. Lemon, Wm. McMicking &c. &c. The Officers of the Society were met by a number of gentlemen of the town and neighborhood of Niagara, and a strong and unanimous feeling was evinced towards the carrying out of the objects of the Society at the next exhibition, with a zeal and spirit proportionate to the magnitude of those objects. The Secretary read a letter from Mr. H. K. Boomer, of St. Catherines, stating that the grant of £25, made by the Niagara District Agricultural Society, towards the funds of the last Exhibition, will shortly be placed to the credit of the Association. It was determined that the space to be inclosed, with the buildings, offices, &c., should be of greater dimensions than they were at Kingston. The Local Committee will shortly advertise for tenders. The spacious common, adjoining the noble river and steamboat landing, will afford every thing that could be desired for the convenience and comfort of visitors and exhibitors. We give below the names of the gentlemen composing the Local Committee, who will meet, for the transaction of business, every Saturday afternoon, at two o'clock, at the office of the Secretary in Niagara.

LOCAL COMMITTEE.

Andrew Heron, *Chairman.*

R. Wagstaff, *Treasurer.* | John Simpson, *Secretary.*

Sheriff Kingsmill,	William McMicking,
Judge Campbell,	Richard Hescott,
W. H. Dickson, M.P.P.	William Woodruff,
Dr. Melville,	John Gibson,
John Lemon,	Gilbert McMicken,
George Boomer,	Dilly Coleman.

COUNTY OF YORK (LATE HOME DISTRICT) AGRICULTURAL SOCIETY.

The Spring Exhibition of this Society was held in this city on the 8th ultimo. The principal characteristic was the Horses, which were numerous, several possessing very high merits. In horn cattle the Show was rather scanty, but we observed some good specimens of improved and native breeds. Of sheep and implements the stock was small, which was the case with dairy produce, sugar, &c.

The number of visitors was very large, the greater part being citizens. A pressure of work, increased by the peculiarity of the season, prevented the attendance of many from the country. His Excellency the Governor General, attended by Colonel Bruce, &c., came on the ground about two o'clock. We were glad to hear, that, by the zealous exertions of several individuals, the members of this society have of late been much increased, and a considerably larger sum than has been the case for some time past, was awarded on this occasion for premiums. The citizens of Toronto cannot do better than extend to this valuable society a liberal support, by which they will secure one Show at least during the year being held in the city. The removing of the Show into the country, last fall, has been found, in more ways than one, to work well for the funds and usefulness of the Society.

A good, substantial dinner was got up at Elgie's Hotel, Yonge-street, and was well attended. The President of the Society, E. W. Thomson, Esq., discharged the duties of the chair with his wonted good feeling and ability. After the usual loyal toasts were given—including the Governor-General, as Patron of the Society—(all of which, it is unnecessary to say, were warmly received,) the meeting was addressed by Messrs. Robertson and Hind, of the Normal School, who made a strong impression in favor of the improvement and extension of popular education. The Hon. Malcolm Cameron followed with an effective address, on the connection between agriculture and commerce. Col. Thompson, Mr. Buckland, Mr. Atkinson (the Society's Treasurer), and others, severally addressed the meeting; and upon the healths of the two indefatigable Secretaries being given, in highly complimentary terms, Messrs. Wells and Crew returned thanks in a suitable manner. We are restricted, by our limits, to this brief notice.

TOWNSHIP OF YORK AGRICULTURAL SOCIETY.

The Spring Show of this Society took place at Mr. James Nightingale's, on Yonge Street, on the 7th ult. The show of Horses was good, both in point of number and quality, but in the other departments neat cattle, sheep, dairy produce &c., the entries little exceeded former years, either in number or excellence. This Society has lately more than doubled its numbers; a result so desirable has been mainly accomplished by

some extra exertion on the part of a few individuals, among whom stands conspicuous Mr. Joseph Ashford, the proprietor of the well known stud-horses *Young King Alfred* and *Grand Turk*.

The proceedings of the day terminated with a dinner, which was profusely got up by Mr. Nightingale. The President, Franklin Jakes, Esq., occupied the chair, and after the disposal of the routine toasts, a number of observations were made, by several speakers, interesting to farmers.

THE FARMER'S GUIDE TO SCIENTIFIC AND PRACTICAL AGRICULTURE.

We noticed in our last, the appearance, from the American press, of this most valuable publication, and we have since received the third number, which fully sustains the high and useful character of the work, as regards both literary and mechanical execution. It is the joint production of two eminent men, whose qualifications for such a task are well understood and appreciated on both sides of the Atlantic. Mr. Henry Stephens, of Edinburgh, the author of the celebrated *Book of the Farm*, and Editor of *the Journal of the Highland Agricultural Society*; and Mr. John P. Norton, Professor of Scientific Agriculture in Yale College, New Haven, a pupil of Professor Johnston, and well known to the Scientific and Agricultural world, for his elaborate analysis of the oat, for which he received the Fifty Pounds Premium offered by the Highland Society. Mr. Norton has also just issued, under the patronage of the New York State Agricultural Society, an admirable little treatise on the Scientific Principles of Agriculture, adapted to the use of farmers and common schools. From the knowledge and experience of two such men, the public may confidently look for an original and first-rate production; Mr. Norton's contributions adapting it to the climate and peculiar wants of this continent. This arrangement appears to us peculiarly happy; since the American cultivator will possess a work which, in its main features, will be found suited to his practical wants, and which will give him, at the same time, a clear and comprehensive view of the agricultural practices of the best cultivated portions of the British Islands. We have no doubt but this American edition will be read with both pleasure and profit, by many of the enterprising cultivators of our father-land.

The Farmer's Guide to Scientific and Practical Agriculture, embraces a wide and most important field of enquiry, and judging from what is already published, and the high standing of its authors, we have perfect confidence that the work, when completed, will fully sustain the very comprehensive character of its title.—The practical details of the farmer's business, in the natural order of their sequence through each season of the agricultural year, together with the scientific principles on which their successful issue must depend, are so fully and simply explained, as to be brought fairly within the reach of the most ordinary intellect. The work will be completed in twenty-two numbers of sixty-four octavo pages each, handsomely printed, with upwards of six hundred steel and wood engravings, executed in the best style of British art, for the very moderate price of a quarter of a dollar each number. Such of our readers as desire to have within their reach a carefully digested and systematic treatise on the theory and practice of agriculture, *brought down to the latest moment, and specially adapted to the wants of this continent*, should at once order the publication. Mr. Rowsell, and Mr. McClear, of this city, can supply it in parts as they are published, and, we presume, all other booksellers throughout the British Provinces.

THE AGRICULTURAL CAPABILITIES OF NEW-BRUNSWICK.

The fourteenth, fifteenth and sixteenth chapters of Professor Johnston's Report contain a great variety of recommendations, which are nearly all condensed into a summary form in the succeeding chapter, which summary we now lay before our readers, in the hope that the suggestions of this eminent scientific Agriculturist will have the weight to which they are justly entitled.

I. Points to which the attention of the Legislature may be beneficially directed—

1st. Arterial drainage of wet lands, swamps and marshes.

2d. Register of information for Emigrants, under the direction of each local Society or in each town or district. This Register to contain information regarding both the public lands and private farms which are for sale.

3d. The introduction of a certain amount of Agricultural instruction into the Elementary and Grammar Schools.

4th. Into the Normal Schools of Fredericton and Saint John.

5th. Into the Academy of Sackville and the College at Fredericton.

6th. An Educational Farm at Sackville, in connection with the Academy and the agricultural instruction given there.

7th. An Agricultural High School or College at Frederickton, connected with a School Farm. In this High School a full course of agricultural instruction should be provided, and it may or may not be connected with the existing College at Fredericton.

8th. The establishment of District Corn and Cattle Markets to be held in stated places at stated periods, for the convenience of buyers and sellers, and the fixing of prices.

9th. To tax all granted and unimproved lands above a certain number of acres, the proceeds to form a fund for the arterial drainage and other general improvements of the surface in the Parish, Township, District, or County.

10. The establishment of a Central Agricultur-

al Society, to whom the grants of money to local Societies should be entrusted.

11th. To open up some of the new roads through or into the ungranted lands of superior quality which are coloured red in Maps II. III. attached to this Report.

12th. A removal of the difficulties which at present stand in the way of the selection, survey and purchase of land. These difficulties are a great hindrance to the emigrant, and have no doubt greatly diminished the inducements to settle in the Province.

13th. To lessen if possible the causes for litigation which at present arise so often out of the unsettled boundaries of farms.

14th. By township or district surveys to make it more easy for an emigrant to settle himself, and so to define the boundaries of farms as to leave no cause for such litigation among future settlers.

15th. By small special grants of money to aid in the formation of Agricultural Libraries.

16th. The employment of a peripatetic practical Agriculturist to visit the different settlements at the application and under the direction of the local Societies, to instruct the settlers in the husbandry of manure, turnips, and other practical branches.

17th. To obtain an economical and practical Survey of the Coal Field of New Brunswick, with the view of setting at rest the question as to the supply of fossil fuel in the Province.

18th. As less urgent than this, a continuation of the Geological Survey.

19th. An analysis of the various limestones found in the Province, in reference to their fitness for agricultural and other purposes.

20th. An analysis of the iron ores of the Province, and an *economical* Survey and Report as to their extent, would also be an important work for the Colony.

II. Points to which *Agricultural Societies* are recommended to direct their attention:---

1st. Encouragement of thorough drainage by premiums, and by the introducing of machines for the home manufacture of draining-tiles at a cheap rate.

2d. Of deeper and sub-soil ploughing by premiums, and by the purchase of sub-soil ploughs for the use of the locality.

3d. Of the establishment of Agricultural factorships at each of the principal market towns, and local or district fairs or markets.

4th. Of the improvement of native breeds of Stock by judicious selection, or by the importation from adjoining districts, or from abroad, of better or purer breeds.

5th. The opening up of roads through ungranted lands of good quality.

6th. Providing local registers of wild lands to sell—their quality, locality, price, &c.:—of partly improved farms which an emigrant may buy; their localities, extent, qualities and prices; and of farmers who are in want of servants; the wages they offer, &c., &c.

7th. To discourage the system of selling off hay from the farm, and of otherwise robbing it, without laying something upon it which shall be equivalent to what it has lost.

8th. A trial of the use of lime, judiciously applied to land in rich vegetable matter, naturally poor in lime, or on which crops grow too rank.

9th. The formation of Agricultural Libraries in each limited district, within which the books will be readily accessible, and the circulation of Agricultural Periodicals.

10th. To encourage trials in growing flax generally, hemp, where the soil is specially adapted to it; broom-corn, in warm and early situations; hops for home use and exportation; the sunflower and poppy, for the manufacture of oil.

11th. The establishment of one or more Agricultural Implement manufactories, and to encourage the use of home made tools.

12th. The more general preparation and use of composts of all kinds, and of green manures as a means of restoring worn out land.

13th. The erection of warmer, well ventilated cow houses for the cattle in winter.

14th. The adoption of a more generous and careful mode of rearing young stock.

15th. A better feeding of the whole cattle during winter.

16th. The use of linseed or linseed-cake, and of prepared food in the feeding of cattle.

17th. The growth and use of turnips and cabbage as additions to the usual winter's food of the cattle; and as a means of raising food for a larger number of stock from the same extent of land.

18th. A more generous feeding of milch cows in winter and spring, with the use of oil-cake, linseed-jelly, and the whey of their own milk, as additions to their ordinary food.

19th. The introduction of chaff cutters, linseed and bean crushers, cob cleaners, horse rakes, &c.

20th. Attention to the curing of beef, pork and butter.

21st. Collection of waste bones, the erection of bone mills, and the use of crushed bones as a manure.

22d. Experiments with gypsum, wood ashes, sulphate of ammonia, &c., as manures.

23d. More extended fall ploughing.

24th. Encourage the growth and consumption of oats as an article of ordinary diet among the people.

25th. The importation of changes of seed, and the sale of it in the district at reasonable prices.

26th. The encouragement of the home growth of grass, turnip, clover and other small seeds, of a pure and unmixed quality.

27th. The covering of manure heaps, so as to protect them from the great heats of summer, and from washing of the rains and melting snows of spring.

28th. Attention to the growth of wool, either as an article of export or as a means of employment for the members of the farmers' family in winter.

29th. A more frequent use of marsh, swamp, sea and mussel mud, as a means of fertilizing the land.

30th. It would be important also to promote the keeping of Meteorological Registers in each County, by which the fall of rain, the temperature, the prevailing winds, &c., in different localities, may be accurately ascertained.

As one way of promoting the objects above alluded to; Agricultural Societies may recommend, encourage, and offer premiums for or on such subjects as the following:---

1st. On the clearing of land without burning.

2d. On the drainage of swampy places by leading cuts or outfalls.

3d. On the thorough drainage of clays, of soils resting on clay sub-soils, and of land liable to be baked or burned up in summer, or on which crops are *winter-killed* by the frosts of spring.

4th. For rolling and draining grass lands liable to be winter-killed.

5th. For experiments on deep and sub-soil ploughing.

6th. For the growth of winter grain.

7th. For wheat grown on old land.

8th. For the earlier cutting down of oats and other grain.

9th. For the best or most skilful rotation of crops.

10th. Experiments with other kinds of grasses besides clover and Timothy, commonly used. Native grasses might probably be found that would be equally *nutritive, productive, hardy and lasting* in the ground, as these, or *more so*. *Rye grass* does not suit the land or climate, as it is usually thrown out or *winter-killed*. After the Timothy dies out, other native grasses come up which are almost always poorer than the Timothy, but if a good selection of native grasses were sown, and allowed to get hold of the land while it is in *good heart*, they might form a thick sole of grass, which if properly pastured would not for many years become poor or mossy.

11th. For the raising of grass seeds, and on the best way of laying down to grass.

12th. On the growth of flax, hemp, poppy and sun-flower.

13th. On the use of bones as a manure generally.

14th. For special trials with dissolved bones and ammoniacal salts in promoting the growth of wheat.

15th. On the saving of liquid manure by tanks or otherwise.

16th. With lime, and with gypsum, or gypsum and salt, or lime and salt.

17th. On the use of nitrate of soda, common salt, ashes leached and unleached, ammoniacal salts, and other similar fertilizing substances.

18th. With swamp, sea, mussel, and other varieties of mud, either alone or in the form of compost.

19th. In ploughing in manure in autumn.

20th. On top dressing the young clovers with earthy compost in autumn as a preservative against being *winter-killed*.

21st. For the leaving or planting of trees for the purpose of shelter from cold, injurious, or prevailing winds.

22d. For the planting of maple groves and manufacture of sugar.

23d. For the best samples of home made flour and oatmeal.

24th. In improving stock from native as well as from imported animals.

25th. For cattle which give the richest milk.

26th. For the largest produce of milk, cheese and butter from a single cow, or from a dairy of cows.

27th. For the best arranged and most comfortable cow houses.

28th. On the superior profit of warm well ventilated stables in saving food.

29th. On the comparative profit of sparing and plentiful feeding in winter.

30th. On the use of the straw of Indian corn in feeding cattle.

31st. For the manufacture, importation, and use of oil cake in feeding.

32d. On the feeding of milch cows with the whey of their own milk.

33d. On the curing of beef, pork and butter.

34th. On the comparative profit of horses and cattle in the cultivation of arable farms—especially in reference to the shortness of the season.

35th. For the introduction and use of any implements which save labour profitably.

36th. For the introduction of any new and profitable employment for winter.

37th. For the cleanest and best fenced farm—the best cultivated on the whole—the largest crops on the whole, the largest and finest crops of particular kinds, the finest and best treated stock of cattle, or pigs, or sheep—the largest best managed or most productive dairy, the most profitably managed, &c., &c.

III. Points to which *individual farmers* are recommended to direct their attention:--

1st. Through drainage of clay soils, wet slopes and bottoms, and marsh or dyked lands, where the fall is sufficient to admit of a ready outlet, and a sufficient depth of drain.

2d. Better cleaning and deeper ploughing of the soil.

3d. More care in saving, collecting and applying manures of all kinds---liquid and solid.

4th. An abandonment of the system of cutting repeated crops of hay off the same land, till it is exhausted.

5th. An abandonment also of the custom of taking repeated successive crops of corn off the same land, without alternation with other crops and without manure.

6th. Cutting down grain of all kinds before it is fully ripe, and grass before it runs to seed.

7th. Cutting down Indian corn with a knife as is done in New York, and use of the stalks in feeding milch cows and other stock.

8th. Sowing buckwheat or rye to plough in green, and use of bone dust to renovate exhausted and worn out lands.

9th. Ploughing deeper in all cases than has hitherto been usual, but especially such land as has ceased to be productive as formerly.

10th. Taking advantage of every open day in the fall to plough and prepare the land for the spring sowing.

11th. Selecting good stock of cattle, pigs and sheep for keeping through the winter.

12th. Providing warm but well ventilated housing for them.

13th. Feeding them plentifully, that they may be in good condition when spring arrives.

14th. Growing turnips and linseed with the view of adding to the quantity and enriching the quality of the food he has at his disposal.

15th. Collecting carefully and preserving under cover all the manure made by his stock during the winter, that he may have it abundantly and in good condition for his potatoe and green crops when the time of planting or sowing comes.

16th. Manuring annually, by top dressing, his worn out hay lands, when the land is not stumped and therefore cannot be ploughed up.

17th. Collecting carefully all waste bones, breaking and applying them to the land; especially the use of bones is to be recommended upon land which has been worn out by over cropping with corn.

18th. Sowing down always with artificial grasses, when land, after a corn crop, is to be left with the view of its producing hay.

19th. To provide shelter, by fences or plantations, for his fields and stock.

THRIFTY vs. UNTHRIFTY.

There is no difficulty in determining the character and intelligence of the farmer by the appearance and condition of the farm. When you see good fences, well cleared fields, a neat farm house, and comfortable outhouses, you will seldom err in concluding that industry, intelligence, sobriety, and "good luck," as it is often improperly called, are practised and understood by the proprietor. Where, on the other hand, you meet with broken-down fences, ill cleared and badly cultivated fields, a miserable dilapidated dwelling, a crazy, shattered barn, &c., &c. your will *never* be wrong in saying there lives a man who is ignorant, drunken, idle, or, it may sometimes happen, the victim of lingering disease and poverty! There is a middle class between these two, and, we regret to say, a rather numerous class, in Canada, who are neither thrifty nor unthrifty, neither industrious and tidy, nor dissolute and idle, but who are wholly indifferent to appearances, and whose farms, are liable to be mistaken for the residence of Mr. Unthrifty. Such are more frequently met with in new settlements, where the chief object is to clear as much land

and raise as much wheat as possible. The advantages, nevertheless, even here are greatly in favor of taste and neatness. Many a field of grain has been destroyed in one night for want of a good, well fitted gate, instead of a *lazy* pair of bars, or mere "gap." Many a good horse has been foundered for want of a well secured bin, or a door with proper fastenings.

A mere habit of carelessness which grows up with the bush farmer, almost necessarily, and which nothing but a good early training or a peculiar bent of mind, which some people have naturally, can overcome, is a fruitful cause of many losses, misrepresents the farmer to the passer-by, reproduces itself in his sons, and thus not only deforms the face of the country while the old man lives, but makes it look ugly after he is dead. Such being the effect of mere carelessness, we need give very little space to illustrate the evils, the wretched consequences of absolute idleness and dissipation, to the farmer. We have presented two cuts in this number in opposite pages which convey the lesson to the mind more forcibly than our pen can do it. We leave the reader to his own reflections.

It is a great mistake to consider husbandry too narrow and mean an employment for a man of taste and education. Is it possible to propose a nobler entertainment for the mind of man than he would find in the inquiries he must make into the operations of nature? The subject is so vast that it can never be exhausted; for, could he live for ages, he might still go forward in his researches, and still make fresh discoveries, that would excite afresh his admiration of the riches of Divine Wisdom.

ON THE DIGNITY OF LABOR.

(From a Speech of the Bishop of Oxford, at the Westminster Meeting in aid of the Exhibition of the Works of Industry of all Nations, to be held in 1851.)

I believe that the tendency of this exhibition is to benefit the working classes. I am not one of those who have any secret misgivings as to there existing any intestine warfare between Christianity and science or manufactures. I know that there are men upon whose excellence it would be needless for me to enlarge who do entertain such apprehensions. In the quiet of their learned study, conversing with times that are gone by, they are startled by the din of the busy age, as it rises through their windows. They listen with apprehension and dislike to the voice of the age in which their lot has been cast, and they call it a mechanical age, and find with it other such like faults. Now, I do not sympathise with their opinions. I deny, and hold it as unworthy of Christianity to suppose, that there can be any opposition whatever between the fullest development of those faculties with which Almighty God has furnished man, and that Christian faith which is to train those faculties to their highest ends. When from these abstract considerations I turn to the actual world around me and survey these mechanical inventions, I see in many instances beneficence marking these very mechanical improvements, and they have s

direct tendency to ameliorate the condition of the lower classes of the people, and to bring within their reach advantages which were before restricted to the richer grades of society. And then, moreover, whether we regard the results of mechanical science or the products of art, I think we shall be conviced that there is a connexion between perfection in these and the faith of Christianity. As an historical fact, it is plain that there never was a country or a time which could long maintain pre-eminence in art or science divorced from Christianity. I believe that the history of all countries will show this.

Look for a moment at the Chinese. We find that nation, so eminently gifted with those special faculties which would naturally make them superior in all the mimetic arts, in a state of perpetual stagnation, having lost even the power of using the inventions of former ages. And this is so because they want the spring which Christianity alone can give to set all their faculties in exercise, and to develop them to their highest standard of perfection. I think it, therefore, my part, holding the place which I do hold in the Christian Church, to come forward, not with any secret misgivings; not with any cold, injurious doubts or hesitations, but heartily, and I may say, rejoicingly; not in spite of my Christianity, to aid according to my powers in the development of science, and the mechanical arts. This, it is my firm belief that it is my duty to do, and I feel that I am on my right ground when I stand here and address these observations to you. But I feel, moreover, that it is possible a nation may be too much occupied with the works of art, and with the triumphs of science; and that in attending too exclusively to these, it may lose that eternal flow of life, without which all external developments are worse than useless. I see, or I think I see, that the proper attribute of Christianity, and of a Christian teacher, is that they should mingle in works like these; and that in doing so, they should try to call attention to the wants and the necessities of the producers of these works, and to remind the nation that, after all, man is greater than his works, and the workman superior to his fabric. So this exhibition calls attention to the dignity of labor; it sets forth in its true light the dignity of the working classes; and it tends to make the other people feel the dignity which attaches to the producers of these things.

In more than one way some such happy results may follow. For instance, it is one special part of our duty to ameliorate the disadvantages which must almost of necessity attend upon the workers of these results. And here I might first speak of their physical disadvantages: for we have lately seen the operations of science specially applied to the alleviation of some of those disadvantages; such as the invention of the magnetic gauze which is placed over the mouth of the worker in steel filings, to prevent him from inhaling those particles which would be injurious to his health. Now, I think that when science is thus brought to bear upon the amelioration of the physical condition of the producers of those results of industry, it may be even seen as pointing to its noblest aim, and then by it God is served while it blesses man. By all such well-directed labor, indeed, we are re-conquering in the domain of nature the rights of man. Man was meant to reign over the elements, to replenish the earth, and to subdue it: and as we have come to the days of its mighty replenishment, so the Almighty hand of the Great Designer has guided us to the approach of that day when we shall see the subjugation of the elements. What are all these discoveries of science? What are all those mighty engines which almost annihilate space, and connect together the most distant places? What are they but a giving back to man his original birthright, a power over the elements, and a command over the material world? What is it when we turn from power to beauty? when we teach the loom to imitate the most beautiful productions of nature? what is it but following the leadings of that mysterious hand which beckons man on by labor and industry to regain his lost inheritance, and to imitate the works of his Almighty Creator? What are the most delicate fabrics of the most beautiful loom but imitations of the works of the God of Nature? And what are all the works that we are engaged in doing, but a striving to imitate, by dint of hard labor, what the Almighty Will did with a word, when out of the dumb forces of the struggling and confused chaos, he called forth by his fiat the harmonious voice of Nature; when out of the boiling and seething mass in that chaotic cauldron he called forth order and beauty, decked the earth with trees brightened it with flowers, gladdened it with his sun, and finally set man in the midst of it to achieve new triumphs, and to attain new conquests by yielding gladly to that primeval curse which God turned into a perpetual blessing, when he made that labor, which is the instrument of man's victory, to be at the same time the discipline of his spirit.

VARIETIES OF THE OAT.

At one of the recent monthly meetings of the *Highland Society*, Mr. Lawson, the celebrated seedsman of Edinburgh, read a very elaborate and interesting paper on the various kinds of oats cultivated in the different districts of Scotland and the adjacent islands. The oat may be said to be the staple agricultural production of that country, whose soil and climate are so well adapted to its growth. Although in Canada we cannot hope to equal either Scotland or Ireland in the production of this valuable cereal, yet much may be done even here to improve the quality of the oat; and the following facts, gleaned from the before mentioned article, will doubtless be read with interest by many of our readers.—It is worthy of particular remark, that according to the most approved authorities the meal obtained from the oat holds a foremost rank among the various grains used for human food. The most healthy and muscular people are those who

make a free and constant use of it:—such for example as the laboring classes of Scotland and Ireland, and the north of England.

There are upwards of 60 varieties of Oats known to botanists, of which about 30 are grown in Scotland. Of these, however, only a dozen are in general cultivation; viz., Potato, Hopetoun, Sandy, Early Angus, Late Angus, Grey Angus, Blainslie, Berlin, Dun, Friesland, Black Tartarian, and Barbachlaw. These are enumerated in the order of their general cultivation, and nearly to that of their economical value, as well as their fitness for soil and situation, in regard to shelter, ranging from the best to the worst. Several other varieties are cultivated in certain districts according to soil, elevation &c.: — some of them being merely experimental and limited to scientific farmers.

To obtain new varieties possessing qualities specially adapted to particular soils, altitudes, and climate, is a task of great difficulty, requiring correct knowledge and the exercise of great patience and perseverance. By such means much that is truly valuable has been, and may yet be accomplished.

The quantity and quality even of the Potato Oat may be advanced much nearer perfection, by selecting from the panicle, as the proginitor of an improved variety. Early ripening may be induced by selecting such grain for seed as comes earliest to maturity. By careful observation and experiment much yet remains to be accomplished in the improvement of our cereals as well as domestic animals.

"Agriculture is confessedly but yet in its infancy. Its exaltation to the class of science is comparatively recent. We should all, therefore, cheerfully lend a helping hand in solving this great problem which science has propounded, and by *experiment alone* can this be done. Experiments, as Von Thaer tells us, are not easy; still they are in the power of every thinking man. He who accomplishes but one, of however limited application, and takes care to report it faithfully, advances the science and consequently the practice of agriculture, and acquires thereby a right to the gratitude of his fellows, and of those who come after."

INDIVIDUAL ENTERPRISE. — *Lewis G. Morris, Esq.*, of Mount Fordham, Westchester Co., N. Y., is gone to England to attend the sale of short horned stock of that celebrated breeder, the late Thos. Bates, Esq., of Yorkshire. Mr. Morris's importations—if he makes any—may be seen at the second annual sale at Mount Fordham, in October next.

THE SEASON IN SCOTLAND.

Perhaps no season ever beamed more smilingly on our happy land than that which is now coming to a close; for assuredly the weather has throughout maintained a character so mild and so well fitted in every respect for the progress of spring operations in the garden, that a season like this must be looked upon as a perfect wonder in this cloudy, rainy country. The bulk of garden seed crops have now been committed to the soil, and the dry and warm seed-beds in which they have been enfolded give every hope of a good return for spring labors. Let every one who has put his hand to the spade and plough now breathe the poet's prayer:

> "Be gracious, Heaven! for now laborious man
> Has done his part. Ye fostering breezes, blow!
> Ye softening dews, ye tender showers, descend!
> And temper all, thou world-reviving sun,
> Into the perfect year!"

Scottish Agricultural Journal.

THE FARM AND THE DESK.

The *New York Sun* truly remarks, That the young man who leaves the farm-field for the merchant's desk, or the lawyer's or doctor's office, thinking to dignify or ennoble his toil, makes a sad mistake. He passes, by that step, from independence into vassalage. He barters a natural for an artificial profession, and he must be the slave of the caprice of customers and the chicane of trade, either to support himself or to acquire a fortune. The more artificial a man's pursuit, the more debasing is it morally and physically. To test it, contrast the merchant's clerk with the plough boy. The former may have the most external polish, but the latter, under his rough outside, possesses the truer stamina. He is a freer, franker, happier and nobler man. Would that young men might judge of the dignity of labour more by its usefulness and manliness, than by the superficial glosses it wears. Therefore, we never see a man's nobility in his kid gloves, nor in his toilet adornments, but rather in that sinewy arm, whose outlines, browned by the sun, betoken a hardy and honest toiler, under whose farmer's or mechanic's vest a kingly heart may beat.

THE FARMER—A BEAUTIFUL PICTURE.

The man who stands upon his own soil, who feels that by the laws of the land in which he lives—by the law of civilized nations—he is the rightful and exclusive owner of the land which he tills, is, by the constitution of our nature, under a wholesome influence, not easily imbibed from any other source. He feels—other things being equal—more strongly than another the character of a man as the lord of the inanimate world. Of this great and wonderful sphere, which, fashioned by the hand of God, and upheld by his power, is rolling through the heavens, a portion is his; his from the centre to the sky. It is the space on which the generation before him moved in its round of duties; and he feels himself connected, by a visible link, with those who preceded him, as he is, also, with those to whom he is to transmit a home. Perhaps his farm has come down to him from his fathers. They have gone to their last home; but he can trace their footsteps over the scenes of their daily labours. The roof which shelters him was reared by those to whom he owes his being. Some interesting domestic tradition is connected with every enclosure. The favourite fruit tree was planted by his father's hand. He sported in his boyhood beside the brook, which still winds through the meadow. Through that field lies the path to the village school of earliest days. He still hears from his window the voice of the Sabbath bell, which called his fathers and forefathers to the house of God, and near at hand is the spot where his parents laid down to

rest, and where, when his time is come, he shall be laid by his children. These are the feelings of the owner of the soil. Words cannot paint them—gold cannot buy them—they flow out of the deepest fountains of the heart; they are the life spring of the fresh, healthy, and generous national character.—*E. Everett.*

General Science and Miscellany.

THE SILK-WORM'S WILL.

BY MISS H. F. GOULD.

On a plain rush hurdle a silk-worm lay,
When a proud young princess came that way;
The haughty child of a human king
Threw a sidelong glance at the humble thing,
That took, with a silent gratitude,
From the mulberry leaf her simple food,
And shrunk, half scorn and half disgust,
Away from her sister child of dust;
Declaring she could never see
Why a reptile form like this should be,
And that she was not made of nerves so firm,
As calmly to stand by a "crawling worm."
With mute forbearance the silk-worm took
The taunting words and the spurning look,
Alike a stranger to self and pride,
She'd no disquiet from aught beside,
And lived of a meekness and peace possessed,
Which these debar from the human breast.
She only wished for the harsh abuse
To find some way to become of use
To the haughty daughter of lordly man;
And thus did she lay a noble plan
To teach her wisdom, and make it plain
That the humble worm was not made in vain—
A plan so generous, deep, and high,
That to carry it out she must even die.
"No more," said she, "will I drink or eat!
I'll spin and weave me a winding-sheet,
To wrap me up from the sun's clear light,
And hide my form from her wounded sight.
In secret then till my end draws nigh,
I'll toil for her; and when I die,
I'll leave behind a farewell boon,
To the proud young princess, my whole cocoon,
To be reeled and wove to a shining lace,
And hung in a veil o'er her scornful face!
And when she can calmly draw her breath
Thro' the very threads that have caused my death,
When she finds at length she has nerves so firm
As to wear the shroud of a crawling worm,
May she bear in mind, that she walks with pride
In the winding-sheet where the silk-worm died!"

LIME AND SALT MIXTURE.

In a former article on this subject, we stated that, for the purpose of making the chloride of lime, and carbonate of soda, as the resultants from the admixture of lime and salt, three bushels of shell lime should be slaked with one bushel of salt dissolved in water. Since writing the article above referred to, we have received a letter from a practical friend, stating that he could not use so large a quantity of the solution of salt with the lime and that he had therefore been compelled to mix part of the salt in an undissolved state with the lime. He suggests, also, that we should further explain, to prevent similar difficulties arising with others.

If the three bushels of lime be hot from the kiln, it will take up as much water as is necessary to dissolve one bushel of salt; but if it be long exposed to the action of the atmosphere, it will not readily receive so large a quantity. In such case, we should advise that after the mass has been turned over, new portions of the solution of salt should be added each day, until the necessary quantity is combined. We have often met with the same difficulty, but have continued daily to add the solution of salt until the necessary quantity is combined. The undissolved salt which our friend has added, he will find combined after the mass has been several times turned over; but it will require more time to complete the combination.—*Working Farmer.*

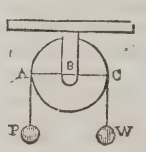
NATURAL PHILOSOPHY.

No. V.

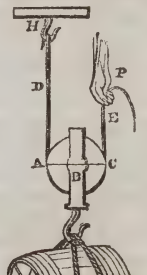
ON THE MECHANICAL POWERS.

THE PULLEY.

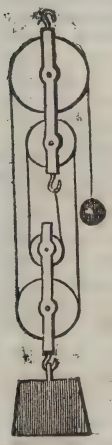
The *pulley*, which is the second mechanical power we are to examine, is a circular flat piece of wood or metal, with a string running in a groove round it, by means of which a weight may be pulled up. Thus pulleys are used for drawing up curtains, the sails of a ship, &c.—When the pulley is fixed, it gives no mechanical advantage. If P represent the power to raise the weight W, it is evident that the power must be something greater than the weight in order to move it. A fixed pulley is useful, therefore, only in altering the direction of the power, and its most frequent practical application is to enable us to draw up a weight by drawing down the string, connected with the pulley. But a moveable pulley affords mechanical assistance. The hand which sustains the cask by means of the cord D E, passing round the moveable pulley A C, does it more easily than if it held the cask suspended to a cord without a pulley; for the fixed hook H, to which one end of the cord is fastened, bearing one half of the weight of the cask, the hand has only the other half to sustain.



Now, it is evident, that the hook affords the same assistance in raising, as in sustaining the cask, so that the hand will have only one half of the weight to raise.—But observe, that the velocity of the hand must be double that of the cask; for in order to raise the latter one inch, the hand must draw the two strings (or rather the two parts, D and E, into which the string is divided by the pulley,) one shortened two inches, while the cask is raised only one. Thus the advantage of a moveable pully consists in dividing the difficulty. Twice the length of string, it is true, must be drawn, but one-half the strength is required which would be necessary to raise the weight without such assistance; so that the difficulty is overcome in the same manner as it would be by dividing the weight into two equal parts, and raising them successively. The pulley, therefore, acts on the same principle as the lever, the deficiency of strength of the power being compensated by superior velocity; and it is on this principle that all mechanical power is founded. In the fixed pulley, [p. 281.] the line A C may be con-



sidered as a lever, and B the fulcrum: then the two arms A B and B C being equal, the lever will afford no aid as a mechanical power; since the power must be equal to the weight in order to balance it, and superior to the weight in order to raise it. In the moveable pulley you must consider the point A as the fulcrum; A B, or half the diameter of the pulley, as the shorter arm; and A C, or the whole diameter, as the longer arm. It may, perhaps, be objected to pulleys, that a longer time is required to raise a weight with their aid than without it. That is true, for it is a fundamental law in mechanics, that what is gained in power is lost in time; this applies not only to the pulley, but to the lever and all the other mechanical powers. It would be wrong, however, to suppose that the loss was equivalent to the gain, and that we derived no advantage from the mechanical powers; for since we are incapable of augmenting our strength, that science is of wonderful utility which enables us to reduce the resistance or weight of any body to the level of our strength. This we accomplish, by dividing the resistance of a body into parts, which we can successively overcome; and if it require a sacrifice of time to attain this end, you must be sensible how very advantageously it is exchanged for power. The greater the number of pulleys connected by a string, the more easily the weight is raised; as the difficulty is divided amongst the number of strings, or rather of parts, into which the string is divided by the pulleys. Several pulleys, thus connected, form what is called a system, or tackle of pulleys. You may have seen them suspended from cranes to raise goods into warehouses, and in ships to draw up sails. Here both the advantages of an increase of power and change of direction are united; for the sails are raised up the masts by the sailors on deck, from the change of direction which the pulleys effect; and the labour is facilitated by the mechanical power of a combination of pulleys. Pulleys are frequently connected, as described, both for nautical and a variety of other purposes; but, in whatever manner pulleys are connected by a single string, the mechanical power is the same in its principle. When there are two, three, &c., strings, the effect is greater; but the apparatus is more complicated, and its applicability is more limited.



A HUNDRED YEARS HENCE.

It strikes me as the most impressive of all sentiments, that "It will be all the same a hundred years after this!" It is often used in the form of a proverb, and with the levity of a mind that is not aware of its importance. A hundred years after this! Good Heavens! with what speed and with what certainty will those hundred years come to their termination! This day will draw to a close, and a number of days make one revolution of the season. Year follows year, and a number of years make a century. These little intervals of time accumulate and fill up that mighty space which appears to the fancy so big and so immeasurable The hundred years will see the wreck of whole generations. Every living thing that moves on the face of the earth, will disappear from it. The infant that now hangs on its mother's bosom, will only live in the remembrance of his grand-children. The scene of life and of intelligence that is now before me, will be changed into the dark and loathsome form of corruption—The people who now hear me, they will cease to be spoken of; their memory will perish from the face of the country; their flesh will be devoured by worms; the dark and creeping things that live in the holes of the earth will feed upon their bodies; their coffins will have mouldered away, and their bones be thrown up in the new made grave. And is this the consummation of all things? Is this the final end and issue of man? Is this the upshot of his busy history? Is there nothing beyond time and the grave to alleviate the gloomy picture?—to chase away these dismal images?—Must we sleep forever in the dust, and bid adieu to the light of Heaven?—*Dr. Chalmers' Sermons and Posthumous Works.*

THE APPLES OF THE DEAD SEA.

"We made a somewhat singular discovery when travelling among the mountains to the east of the Dead Sea, where the ruins of Ammon, Jerash, and Adjeloun well repay the labour and fatigue encountered in visiting them. It was a remarkable hot and sultry day; we were scrambling up the mountain through a thick jungle of bushes and low trees when I saw before me a fine plum-tree, loaded with fresh blooming plums. I cried out to my fellow traveller, 'Now, then, who will arrive first at the plum-tree?' and as he caught a glimpse of so refreshing an object both pressed our we horses into a gallap to see which would get the first plum from the branches. We both arrived at the same moment, and, each snatching at a fine ripe plum, put it at once into our mouths, when, on biting it, instead of the cool, delicious, juicy fruit which we expected, our mouths were filled with a dry bitter dust, and we sat under the trres with our horses sputtering and hemming, and doing all we could to be relieved of the nauseous taste of this strange fruit. We then perceived, and to my great delight, that we had discovered the famous apple of the Dead Sea, the existence of which has been doubted and canvassed since the days of Strabo and Pliny, who first described it. Many travellers have given descriptions of other vegetable productions which bear some analogy to the one described by Pliny; but up to this time no one had met with the thing itself, either upon the spot mentioned by the ancient authors or elsewhere. I brought several of them to England. They are a kind of gall-nut. I fonnd others after wards upon the plains of Troy, but there can be no doubt whatever that this is the apple of Sodom to which Strabo and Pliny referred. Some of those which I brought to England were given to the Linnæan Society, who published an engraving of them and a description of their vegetable peculiarities in their *Transactions;* but, as they omitted to explain the peculiar interest attached to them in consequence of their having been sought for unsuccessfully for above 1,500 years, they excited little attention; though, as the evidence of the truth of what has so long been considered as a vulgar fable, they are fairly to be classed among the most curious productions which have been brought from theHoly Land."—*Curzon's Monasteries of the Levant.*

GREAT SALE OF SHORTHORNS.

We call attention to the following sale of Shorthorn stock. We believe this stock will be found to be of a very superior character. The well known reputation of the advertiser as a good judge, and as an opponent of humbug, assures us that those gentlemen in Canada who wish to infuse new blood into their herd of improved cattle, have an excellent opportunity in the offer for sale of the splendid stock described below. New Hamburg is within 2 hours by Railroad of New York.

The subscriber will offer for sale, without reserve, at public auction, on Thursday, the 29th of August next, at 1 o'clock, P. M., on the farm of J. F. Sheafe, Esq., at New Hamburg, Duchess Co., New York, about 35 head of Shorthorn cattle, including cows, heifers, and calves.

This herd was mostly bred by Mr. Sheafe, and I do not hesitate to say, that I think it *one of the very best* in the United States; and I have seen and particularly examined nearly all of them. Great attention was paid in the commencement of this herd, to the milking properties of the animals forming it; and this, together with fine points and good growth and constitution, have steadily been kept in view in its breeding. There is but one cow in the herd which gives less than 20 quarts per day, in the best of the milking season, while one has given over 29 quarts per day and made 15 lbs. 3 oz. of butter per week, and two others have given respectively, 31 and 36 quarts per day. Their color is of the most fashionable and desirable kind—red, red-and-white and a rich strawberry roan—only one white cow in the lot. They are of good size and fine style, and all in calf to the superb imported bull Exeter, who will also be offered for sale at the same time.

Pedigree of Exeter.—Exeter is of the Princess tribe of Shorthorns—was calved in June, 1848, and bred by Mr. John Stephenson, of Wolviston, Durham, England. He was got by Napier, (6,238,)—out of Jesamine, by Commodore, (3,452)—Flora, by Belvidere, (1,706,)—Jessy, by Belvidere, (1,706,)—Cherry by Waterloo, (2,816,) &c. See English Herd Book, Vol. V., for full pedigree.

Exeter was selected for Mr. Sheafe, by a first rate judge of Shorthorn stock, and was considered one of the *very best bulls* in England.

Mr. Stephenson, the breeder of Exeter, now stands at the head of his class in England, and his stock is of the highest repute. It is entirely of the Princess tribe, and traces its pedigree without any alloy or Galloway blood, back to pure Shorthorns, for upwards of *two hundred years;* a matter of no small consideration to those who wish a *superior fresh cross.*

A. B. ALLEN,
189, Water st., New York.

YORK TOWNSHIP SOCIETY.

During the last month several members of this Society have called at our office, to complain of not receiving the "Agriculturist." We have supplied the Secretary with the number of copies ordered, the names of the members not having been sent to us. The fault, therefore, if any there be, is not with us. The Secretary has promised to send us a list of the names and the places at which the paper is to be left. It appears that the number of members has increased much beyond what was expected, and that more papers are required than was ordered. We may state that we have plenty of back numbers on hand and will be happy to supply any that may be wanting.

Received, the Annual Report of the Central Board of Agriculture of Nova Scotia, for 1849, which shall be noticed in our next.

Professor Norton's Elements of Scientific Agriculture.—We have received a copy of this work from the publisher, and hope to have sufficient time to peruse it before our next issue, to give our readers a correct idea of its merits.

J. P. will probably find a full answer to his enquiry in the proposed notice we intend taking of Professor Norton's new work.

C. P. T., L'Original.—Your communication came to hand too late for the present number.

Inquirer.—As we are not acquainted with the nature of your soil, we can not give an opinion on the propriety of your cultivating "Sainfoin." Indeed whether the climate of this country would be favourable to the plant, we cannot say apart from experiment. In England, Sainfoin is a valuable farm product as given for food for stock, and it makes excellent hay. But its profitable culture is confined to dry, rocky, "calcarious" soils. It is sown with spring grain, at the rate of 3 bushels of seed per acre; and with proper manuring, on suitable soils, this plant will continue productive for five or six years. Generally it is not allowed to remain so long. If any of our readers have had experience in cultivating this plant in Canada, we should feel obliged by their communicating the results of their practice. We should fear the effects of our winters.

WEATHER, MARKETS, &c.

The weather continued excessively dry, with cold frosty nights, up to the beginning of the present month; vegetation accordingly made but little progress, and the seasonal operations of the farm such as sowing, &c., have been kept in a backward state. In this section of the country a change was ushered in by thunder and heavy rains on the 7th instant, which have come just in time to save the hay and spring crops, which were suffering extremely. The season has been unusually late and difficult for the farmers; but live stock has been pretty well supplied on account of the abundant produce of hay and roots of last year. We have, however, dismal reports from some of the eastern parts of Lower Canada: New Brunswick, Nova Scotia, &c., where owing to the lateness of the season and the severe draught experienced last summer in those districts the hay and spring crops in a great manner failed, and great numbers of cattle this spring have actually died of starvation. In some parts of the country no want of rain has been felt, but the temperature has every where been low, and the reviving season of Spring may be considered from two to three weeks later than usual, wheat has gone through the ordeal better than could have been anticipated. The plant is of course short and backward, but generally it is healthy and of a good colour. With genial weather it will come rapidly into ear; the quickness of growth and the very limited period that remains for its maturity, must have an unfavorable influence on the plumpness and weight of the grain. Throughout the wheat growing districts of the United States, the reports of the growing crops are highly satisfactory.

In the British Islands, we learn that the season for sowing spring grain had been propitious. The cultivation of the potato in Ireland will be much extended this year. The weather became cold and ungenial the latter end of April, and through the greater part of May, which checked the growing crops; and the prevalence of strong easterly winds prevented vessels loaded with grain from abroad coming in, a rise of four or five shillings a quarter on wheat was the consequence. Our last advices, however, up to May 28, indicate a favourable change in the weather and larger importations, with prices again retreating. The accounts of the state of the crops on the Continent of Europe are generally favourable, although the spring appears to have been backward and severe. The average price of wheat in England having reached as low as 36s. per quarter, and other kinds of grain in proportion. This occasioned much alarm and distress throughout the agricultural districts. Protectionist meetings have been held without number, and Scotland has at leng h thrown herself into the movement. Higher prices by means of duties on importation, or reduction of rents and taxation, have become the watchwords of the farmers. A low import duty on all foreign grain and other productions for revenue; with a diminution and re-adjustment of taxation, and an improved relationship between landlord and tenant, appear to be the principal means of meeting effectually the present distressed condition of the British farmer. The Free Traders and Protectionists will yet have to come to a compromise.

In Toronto, the market has become quiet; considerable business has been done of late at improving prices. Fleur 23s a 23s 6d per barrel. Wheat 5s a 5s 4d per busbel of 60 lbs·; Spring wheat 4s 4d a 4s 8d per bushel; Rye 2s a 2s 3d per bushel of 60 lbs. Barley 1s 10d a 2s per bushel 48 lbs.; Oats 1s 6d a 1s 8d per bushel 34lbs. Potatoes 1s 8d a 2s per bush. Hay 60s a 70s per ton; Beef and Mutton scarce 5d a 6d per lb. Butter 7 1-2d a 9d per lb. June 12.

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, } EDITOR,
WILLIAM McDOUGALL, } ASSISTANT EDITOR.

VOL. II. TORONTO, JULY 1850. No. 7.

The Canadian Agriculturist.

Published Monthly, at Toronto, C. W.

TERMS:

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SEASONAL SUGGESTIONS.

Before this number gets into the hands of our more distant subscribers, the hay harvest will be fast drawing to a conclusion. A few hints, however, may not, even now, be too late for some of our readers to benefit by. The present season has been one peculiarly unfavorable to this crop; yet it is astonishing to observe what improvements the late rains have effected, by thickening the undergrowth, and infusing fresh vigor into the plants. Too much attention cannot be paid to *close cutting*, since (in old meadows particularly) it is the bottom which yields the greatest weight, and best quality of grass. Hence the necessity of rolling, and clearing the surface of stones, &c., at the proper season, in order to admit the close application of the scythe. Most people allow their grass to advance too far in ripening, before it is cut. In the present season this may be, in some degree, practically unavoidable, in consequence of the late frequent rains. Clover, timothy, trefoil, and, indeed, all the cultivated grasses, are in the best condition for being made into hay when in blossom; and they should on no account be allowed to ripen their seeds before being mown. In making hay, the great object is, to allow the sun and air to act equally upon the whole mass, consequently the regular exposure of fresh surfaces to such action becomes requisite; but, as all practical farmers well know, the handling of hay, during the procass of making, is a matter requiring some attention, much more indeed than is often given, lest the leaf and finer portions of the plant be separated, and

lost on the ground. The revolving horse-rake, of which there are now several improved varieties, is an indispensable implement for gathering hay into rows, and in many respects supercedes the common hand rake: it is, in fact, of immense advantage in the saving of manual labour, at this busy season; and it is likewise of great use in pulling peas, raking stubble, and other operations, so that no farmer of any extent ought to be without one of the best modern construction. About nine-tenths of the weight of grass consist of water; the object of making hay being the evaporation of this water, by exposure to heat and air, so that the hay, when collected into large heaps, may be preserved, without risk of decomposition. Many people, however, in this hot climate, allow the drying process to run too far, thus materially injuring the quality of the hay. Evaporation in the open field is a natural operation, in great measure beyond the control of human art; but hay that is slowly and gradually made, under clouded skies, is found to retain more of its nutitive qualities, and to possess a more agreeable odour, than when exposed to the direct influence of a scorching sun. Hence, putting it into cocks—occasionally turned over and mixed; increasing them in size as the making process advances, is a practice universally pursued in all countries producing the best qualities of hay. Sprinkling salt in the stack, especially when the hay is naturally of inferior quality, or has suffered from wet, renders it more palatable to stock.

The remark in reference to the early cutting of grass for hay, is equally applicable to wheat, and most kinds of grain. It is a general error to suffer the ripening of wheat, for instance, to advance too far before it is cut; and the disadvantages and actual loss are thereby much greater than can readily be calculated. As soon as the grain has passed its strikly *milky* state, *that is the point of time when harvest operations should commence.* It is no longer a matter of mere opinion, but a *fact,* correctly arrived at by ample experiment, and easily explainable on the principles of science, that wheat, when cut a few days previous to the thorough ripening of the grain, actually yields *a larger amount of flour.* By allowing the ripening process to proceed towards completion, the starch of the grain, which constitutes its principal nourishment to animals, becomes changed into woody fibre, a comparatively innutritious substance. Consequently, from thoroughly-ripened wheat we obtain a thick and heavy bran, with a proportionately smaller amount of flour.

We recommend our readers, therefore, to commence cutting their grain *early,* a practice we have shown to be advantageous, as regards the amount of nutritious matter in the grain itself, while the *straw,* in reference to its use as *fodder,* is equally benefitted; and this latter object alone, in a country having such long winters as ours, is one of no small importance. Besides, commencing the cutting of grain before it is fully ripe actually prolongs the period of harvest several days; an advantage which every practical farmer must be able to appreciate, in a climate like that of America; and a large portion of valuable grain, which is sure to be scattered and lost by over-ripeness, would thereby be saved.

The strictest attention should now be paid to keeping down weeds among the green crops, and on every portion of the farm: the corners of the fences and the sides of roads should undergo a strict examination. Fallows should receive a deep and clean culture, and the horse-hoe should be brought into frequent requisition among all the row crops, such as turnips, mangel wurtzel, cabbage, &c. Besides clearing the land of weeds, the frequent and deep stirring of the soil, especially in dry seasons, gives an astonishing impetus to the progress of vegetation. As to root crops, above all others, it is vain to expect a profitable return, without the strictest attention to the principles of good husbandry; and those principles may be expressed in half-a-dozen words,—*judicious manuring, with deep and clean cultivation.*

DEATH OF MR. SMITH, OF DEANSTON.

It is with deep regret that we announce the death of James Smith, Esq., late of Deanston, at Kingencleugh, near Mauchline. He died on the 10th of June. Mr. Smith was understood to have retired to bed, on Sunday evening, in his usual state of health, but died during the night, apparently of an apoplectic shock, brought on, it is supposed, by the over-exertion of a journey of forty miles.

This distinguished agriculturist was born 3rd January, 1789, and was consequently in the sixty-first year of his age. To his system of drainage, his turn-wrest plough, and, latterly, to the sheep-dip composition which, at the period of his death, he was engaged in bringing into use, Scottish agriculture owes some of her deepest debts. Through a determined application to the business of cotton-spinning, he

was able, at the age of eighteen, to take the complete management of the Deanston works. He competed, in 1812, for the £500 premium offered for an effective reaping-machine, by the Dalkeith Farmers' Club, and though unsuccessful, after several trials, received from the Club a piece of plate, of the value of fifty guineas, besides silver cups and a gold medal from Russia. In 1823, Mr. Smith commenced his celebrated drainage operations, which ended in the reclaimation of the Deanston Farm; and, in 1831, published his pamphlet on "Thorough Draining and Deep Working." He was named one of Peel's Sanitary Commissioners, in 1843, and propounded, in that capacity, his great plan for economising sewerage manure, which, high as the name of Mr. Smith, of Deanston, stands, and widely as it is known in agriculture, is destined to extend it still further, as a benefactor of the human race, by whom the sources of reproductive industry have been multiplied through science.

NORTON'S ELEMENTS OF SCIENTIFIC AGRICULTURE.

Elements of Scientific Agriculture, or the Connection between Science and the Art of Practical Farming. Prize Essay of the New York State Agricultural Society. By John P. Norton, M.A., Professor of Scientific Agriculture in Yale College. 12*mo. pp.* 208. *Albany: Erastus H. Pease & Co., No.* 82, *State Street.* 1850.

We have looked through Professor Norton's new Treatise with some degree of care, and find it well adapted to the purpose for which it was mainly composed, namely, to supply correct elementary instruction in Scientific Agriculture, for the use of schools, and inquiring young men, engaged in the business of farming. The application of scientific principles to the art of cultivating the earth, management of the dairy, the breeding and feeding of animals, &c., is treated of in simple language, with scientific accuracy, and in considerable fulness. The publication is alike creditable to the talent and industry of the author, and the discriminating judgment of the valuable Society which has been the means of calling it forth. We should be happy to see it introduced into all the schools, and the family of every farmer, of this country. We shall present our readers with a very brief and imperfect synopsis of its contents.

The author first describes the *organic* and *inorganic* constituents of plants, whence and how supplied. *Soils*, their composition, clarification, and management. *Manures*, their varieties, modes of action, and application. Composition of cultivated crops, with their application to the purposes of feeding. Milk and dairy produce generally. Nature of chemical analysis, and the applications of geology to agriculture. These topics, in connection with others of a collateral nature, are so explained and illustrated, as to be readily understood by persons who have paid but little, or no previous attention to scientific subjects.

The author's views respecting the analysis of soils, &c., by practical farmers, are so much in accordance with our own, and so well calculated to correct a false impression, which has made of late years considerable progress in the public mind, that we subjoin, without abridgment, his remarks under that head. We should be sorry to insinuate the slightest doubt of the ability of chemistry to assist the farmer in the practical details of his daily vocation; something has already been done in advancing the art of agriculture, and much more, we believe, remains to be accomplished, by invoking the aid of science; but to suppose that any practicable educational system will ever convert the farmers of a country (that is, such as pursue their calling for a living) into expert analytical chemists, appears to us perfectly wild and visionary. Many that speak and write upon these matters seem to have no definite conception of the time and patience, the deep and accurate knowledge, with the habit of delicate manipulation, which are required in every satisfactory analysis of organic compounds. The farmers must remain content to leave this business in the hands of those to whom such matters properly belong. An imperfect analysis is worse than useless, for any purpose, either practical or theoretical.

THE TRUE NATURE OF CHEMICAL ANALYSIS.

Among all of the subjects that have been presented to the consideration of farmers, since the work of agricultural improvement commenced, none has been less understood, even by many of those who have pretended to be its expounders, than that of analytical chemistry as applied to agriculture.

Many authors and speakers have labored to establish it as a fact, that there is no difficulty in chemical investigations, beyond what may be overcome by a few days of study: thus a large portion of the farming community have been led into the belief that when proper institutions are established, they themselves do all their own analytical work; just as they do their own ploughing, and as well as the most accomplished chemist could do it.

That such ideas as these are totally at variance with the truth, none who have ever studied the subject thoroughly can for a moment doubt.—It is a perfectly safe conclusion when any man asserts, for instance, the entire simplicity and ease of analysing a soil, that his analyses would not be of a very accurate description.

Chemistry is a science that must be studied earnestly and perseveringly, just like any other branch of knowledge which has a wide range. In order to know what is in a soil, and to determine what are the quantities of its constituents, an intimate acquaintance is necessary, not only with the substances themselves in their almost endless relations and changes; but with great numbers of other substances from which they must be distinguished, and with which they are likely to be confounded by an inexperienced person.

We can only determine quantities by means of certain chemical processes: most of these depend on the addition of other bodies, to a solution in which are dissolved those that we wish to separate. Suppose now these bodies which are thus added to be impure: obviously the whole result will be erroneous; the chemist then, must know how to distinguish with certainty between pure and impure substances, and to tell what the impurities are.

When he knows all of these things, there are still a great number of minor but very important points, that requite attention. He must use absolutely pure water, must filter his liquids through paper that has very little ash, and must weigh everything upon a balance that is sensitive to at least the tenth of a grain.

I might go on and mention other requisites to a good analysis, but those already noted are sufficient to show, that great care, skill, and experience, are absolutely essential in this business; that uninstructed persons must constantly be making mistakes of the most flagrant description.—The worst difficulty of all is that in many cases, not having even knowledge enough to know when they have gone astray, they actually rely upon their own work as trustworthy, and lead others to do so too.

Results produced by such proficients are unhappily too common, and are always productive of harm wherever they go. The farmer who knows even little or nothing of even chemical names, perhaps is not competent to judge of a good analysis; he cannot tell the difference between a pretender to scientific knowledge, and one who really knows something that is true and valuable. He takes these erroneous analysis as his guides, and probably falls at once into some serious mistake, by attempting to alter the supposed constitution of his soil. After he has been disappointed in this way a few times, he is very apt to condemn all scientific agriculture as ridiculous, and of no avail for any practical purposes.

What I wish to impress in this connection, is the necessity of caution in coming to such a decision. Let it first be considered, if the experiments to be carried out have been properly and carefly madule, so that there could be no mistake in that direction. Let it next be ascertained that no physical obstacles are in the way of success, and if it is found beyond doubt that there has been no error from either of these causes, then let the farmer conclude—not that chemistry and scientific investigation are useless; but that the results of analysis obtained were wrongly interpreted, or that the examinations were incorrectly made.

There is truth in science, but it is not every one who can draw it out; and the proper course in cases of an unsatisfactory nature, is to distrust the *man* and not the general principles.

It is easy to show that there are very serious difficulties, other than those which have been already mentioned, in the way of making perfect analyses. We will take soils as an instance.—Where mention has been made of the inorganic substances in soils, as in Table I, p. 60, it must have been noticed that the proportions of some of them were quite small, so much so as to seem of little importance. It was, however, explained that the presence of these minute quantities was absolutely necessary, so much so that our cultivated crops would not thrive without them.

Half a pound of phosphoric acid in 100 lbs. of earth, is a very unusually large proportion, even in our most fertile soils. Half a pound in 100, makes but a small figure when we come to give the composition of a single pound; it is only five thousandths of a pound. Now one pound is a far larger quantity of material than can be used with safety for an accurate analyses. The instruments employed, and the various methods of operation adopted, are such as, in nearly all cases, to forbid the use of a large bulk or weight of the substance to be examined. Consequently only a small fraction of a pound is worked upon, and from this all of the bodies present are to be separated, even down to small parts of a single grain.

It becomes at once obvious, that very great care and very good apparatus, and no small portion of skill, are requisite to an analytical chemist in the determination of these minute quantities. If any of the chemicals used in the analyses, are impure, the impurities of course have an influence upon the result: hence the chemist must know the properties of many other bodies beside those upon which he is at work, in order to be sure that he is not adding something which will prove injurious to the accuracy of his results.

There is still another, among many points that might be noticed in this connection. The processes necessary for the determination of potash, soda, and phosphoric acid, when all are present and in combination with other bodies, are in the least degree complicated and difficult. Many ways of determining them are described in books; some of these are altogether faulty, and all require much skill and knowledge on the part of the operator, that he may avoid serious errors. Thesebodies, it will be remembered, are among the most important that soils contain, because they

are most likely to be exhausted by cropping. A comparatively inexperienced or uninstructed person, may determine iron, umina, or salilica, those bodies which make up the bulk of soils; but when they come to the most important part, the detection and separation of these small quantities, they probably either fail to find them at all, find them when they are not there, or find altogether too much.

In view of the foregoing remarks, how inconsiderate, and how unwise, are the statements of those who would lead the farming community to think that each man is in a short time to acquire the skill to determine all problems of a chemical nature, that may present themselves in the course of his experience. It cannot be acquired by any intelligent man, but he can only accomplish it after a long course of study. When he has gone through with this course, still other dificulties present themselves; to make perfect analyses, he requires a laboratory, and rather expensive apparatus of various kinds.

A good analysis must have his undivided attention, and even then will occupy him not less than from ten days to a fortnight; and what is to become of his farm in the mean time? On the other hand, if he devotes himself actively to his practical pursuits, as every good farmer must for at least a large portion of the year, his chemical knowledge rusts and he soon loses his facility and aptitude for making reliable analyses.

The truth is, that the two pursuits are dissimilar; the chemist may and should know much of practical agriculture, but still his main business must be chemistry; the farmer may and should know much of science, but his daily occupation must be in the field. His leisure time may be more greeably and profitably employed in gaining scientific knowledge, but the business of analysis, and accurate chemical investigations, must be left with those who are trained to it: all points alone which practice can not explain, must go to them.

But some objectors continue, "It is an immense tax on the farmer that he must have every soil analysed, every manure thoroughly examined; these investigations are expensive, and are unattainable for this reason, by the great majority of the community." This is quite true, but it is no less true that the great majority will never require such minute analysis. If the soils in a particular district are all formed from the same rock, one or two careful analyses will suffice to determine the general character of the whole. So with manures; a few analyses of any particular kind will settle its value, in whatever part of the country it may be used. In cases where there is any thing particularly obscure or puzzling, in a soil or field, chemical analysis must be called upon to solve the question.

In most situations, as knowledge of these subjects increases, the intelligent farmer will daily be come more qualified to experiment himself, for particular purposes, using manures of known composition: he may thus frequently arrive, unassisted, at just and important conclusions.

There are moreover, some points upon which the practical man may experiment, without becoming a chemist, and without previous instruction.

ANNUAL REPORT OF THE CENTRAL BOARD OF AGRICULURE OF NOVA SCOTIA, FOR 1849.

This Report is principally made up from the Agricultural Reports, about thirty in number, of the various local Societies in correspondence with the central Board of Agriculture in Halifax. Each Society states the amount of its subscriptions, including the legislative grant, and disbursements, the condition of the crops for the year, with miscellaneous remarks on live stock, improved culture, farm implements, &c. The information is interesting, and would be more useful if given in greater detail The system in Nova Scotia of managing Agricultural Societies, &c., seems very similar to that contained in the new Agricultural Bill now before the legislature of Canada, for the Upper Province. We give the following summary, at the conclusion of the Report:—

Practical Remarks on the annexed Reports.

The collective Reports of the Local Societies in correspondence with the Central Board of Agriculture at Halifax, demonstrate that during the past season, the Potato crops through out the country have been nearly exempt from disease, the only instance of the recurrence of "blight," in malignant form, occurred in a district occupying one mile from east to west, and four miles from south to north, in the centre of Parrsborough; this tract of land was struck with the "blight," and about half the crop of potatoes lost. Another instance of its recurrence is recorded in the Weymouth Report; partial indications of disease were observable in many other parts of the country, but mild in its form contrasted with former years. There can exist no doubt that the extreme dry weather, which prevailed throughout the months of July and August, was a great means of checking the potato disease, as it must now be obvious to every observing mind, that the atmosphere is the chief repository of the disease, and we may consider our potato crops in a measure saved at the expense of the hay crop. Confidence in the potato crop is sufficiently restored to induce a speedy return to extended culture.

The wheat crops have been exempt from the ravages of "Elator Viscater," or wheat fly, which has caused devastation in its track in almost all wheat growing countries. Circumstonces connected with the history of this destructive insect, warrant the belief that its course here has terminated for a time; and we think there is little risk in adopting our usual sowings. As a precautionary measure, however, a due proportion of the Black Sea, and Northern Wheats should be sown early in the month of June; by this late sowing the risk of the "fly is obviated, and these varieties will ripen in our elimate after that period in all ordinary seasons. The greatest risk consequent on late sowing in Nova Scotia, is rust in the straw; this may in a great measure be avoided by adopting the following rules. Choose

hard straw varieties of wheat, for their is a greater variety in that point of view than is generally known; avoid if possible, a full east or south east aspect. Where the early morning sun strikes the field, in sultry weather, where heavy dews are prevalent, let two boys take a cod-line, and one at each end of it may sweep the dew off the crop before sunrise; this will effectually prevent rusting of the straw. This disease is only the result of moisture and of heat, inducing a certain degree of fermentation and decomposition in the cellutar system of the plant, when the minute seeds of fungi floating in air find a congenial bed in the straw for germination. In reviewing the annexed Reports from various sections of the country, it is obvious that the late failures of the wheat and potato crops, have suggested many expedients, and a more general adoption of auxiliary crops; other grains have been more generally cultivated as substitutes for wheaten bread; turnips, carrots, and mangel wurtzel have been substituted for the potato to stock; and we predict that when once their value is experimentally proved, they will retain their place in our green crop culture. There is another reflection impressed on the mind, which mitigates the feelings of disappointment which Agriculturists experience in reviewing the past, namely, the lessons of economy which we have learned; they will prove invaluable to ourselves and our poserity; we can now appreciate the value of the potato and wheat crops in a much higher ratio than formerly, and should those evils ever recur, we shall be better prepared to counteract their efforts. The cultivation of mangel wurtzel ought to be encouraged by every Agricultural Society in Nova Scotia, its value relatively compared with other roots used in feeding stock, places it at the head of the list; its easy culture, certainty of a crop, prolific return and fattending qualities, as well as food for dairy cattle, give it preference to all roots used for these purposes. A small quantity of this root given with good oaten straw, such as that of the early August oats, is preferable to any quantity of the best hay, producing more milk, a greater weight of beef, and higher development of muscle in young stock. If our imported stock were fed with a due proportion of this root, there would be no cause to apprehend a rapid degeneracy such as we now experience.

All the Reports concur in the statement exhibiting the deficiency of the hay crop, resulting chiefly from the effects of long-continued drought throughout the summer. In some instances good crops were obtained from moist meadows, and fields in good heart. During the last few years, hay has been abundant, and farmers have naturally allowed their stocks of cattle to increase, and the consequence of a short crop of hay, is a sacrifice of stock, and years of the farmer's toils are dissipated. The Nova Scotia farmer may regard it as an axiom, that his surplus hay will be required every fourth or fifth year, and if he wishes to preserve an equilibrium in such matters, he must reserve a few stacks of surplus hay, in place of allowing an undue increase of live stock. It is evident from the Reports that much good has been effected by the various Societies throughout the country. Superior breeds of cattle, pigs, and sheep, have been imported, together with labour-saving machines, and improved implements, which not only save labour, but render work a pleasure. These facilities, coupled with the example of a few enterpising men, are effecting greater improvements in Nova Scotia than a superficial view of the country would indicate. Mental culture is also increasing throughout the country, as manifested by several of the annexed Reports.

The Annapolis Royal Society furnishes an example worthy of general emulation. Aware of the great advantages resulting from mutual instruction. this Society has constituted a 'Farmer's Club,' and at one of its preparatory meetings some able addresses were read, twenty-five members joined the club, and eight names were recorded as subscribers to the *Albany Cultivator*. These are important steps in the right direction. The elevation of the mind is the key to domestic happiness, and moral and social enjoyment. It would be a pleasing duty to record a similar Report from every Agricultural Society in Nova Scotia. Dairy husbandry in this country is worthy of every encouragement, and Societies ought to devote a suitable proportion of their funds toward improving that important branch of Agriculture. Dairy stock, as well as the minor details of managemement, are susceptible of much improvement, and there can be no doubt that with ordinary attention and skill, our dairy produce would equal any thing of this kind current in commerce; and farmers ought to remember, that a good cow in the stall, like a good tree in the garden, requires only the same nourishment and attention as that bestowed on the inferior varieties, and the dffierence in the original cost ought never to influence the choice in favour of an inferior stock. The capabilities of the soil in many parts of the Province are satisfactorily demonstrated by the various Reports from Societies. In referring to a communication just received from the Secretary of the Gusyborough Society, we note with pleasure the weights of the grain produced at the competition;—wheat weighed 64lbs. per bushel and the produce 25 bushels per acre; oats weighed 45 lbs. per bushel, produce per acre, 30 bushels. Turnips yielded 800 bushels per acre, being 300 bushels per acre over an average for drill crops. The Central Board during the present year has maintained a correspondence with forty-two local Societies. They also purchased a qaantity of seed wheat: they regret however to find, that this grain (purchased as the Black Sea wheat) has proved a winter variety, and is consequently not suitable to our climate. Chemical manures have also been imported, and distributed to Agriculturalists for experimental application, and Reports of these experiments have proved very satisfactory. They imported a very superior horse-power Threshing Machine, with a circular saw attached, together with rotary churns on the most approved principle, which they mean to dispose of in the most suitable manner for promoting a taste amongst our native mechanics for manufacturing such articles to supply our wants. They have also employed such means for the general diffusion of Agriculiural information as seemed practicable, by engaging the editors of five newspapers in different parts of the Province, to devote a certain portion of their papers to this subject. The Board regret to state that the correspondence with local Societies throughout the country, has been interrupted, and much valuable information lost, in consequence of many of the counties having availed themselves of the power granted to draw the Provincial grant through their Sessions. The Societies in these counties did not feel themselves obligated to forward their Annual Reports to the Central Board. This arrangement has been productive of much confusion and disatisfaction, and the Board sincerely hope, that in future order may be preserved in this important department.

The Board have in perspective the encouragement of a good system of draining and managing bog lands—the introduction of oil cake as an auxiliary to our present catalogue of animal food—and the stimulation of a good system of growing seed in the Province. They have also made arrangements for a judicious importa-

tion of seed oats, and are collecting the genuine varieties of spring wheat—with a view to the general distribution of those articles in the country. They have also made provision for importing a few of the best Agricultural publications published in America, as being best suited to our general wants.

PROGRESS OF IMPROVEMENT.

We adopt the following remarks of an Agricultural cotemporary; they will suit the latitude of Canada:—

What a mighty field is embraced in these two words! Who is so blind as not to feel their force—who that knows aught of the past or partakes willingly of the present state of society, but knows that in them lies the secret of all our superiority and advantages! Is it not, brother farmers, most true that "knowledge is power," and in farming as in every other avocation? Look about and see who are our best farmers—if they are not the most intelligent ones—those who "take the papers," who think and read the most—in short, those who know the most? To be sure knowledge is but a means, a sort of improved implement, which, unless applied, is inert and worthless. A dull tool with a vigorous arm will accomplish more than the keenest idle one. But give the proper weapon to the most active and expert and then see the effect! In this view of the case, it pains us exceedingly to see the indifference manifested by many of our farmers on this subject — refusing, as they do, the simplest, truest means of improvement when offered them in the shape of an Agricultural Periodical at only fifty cents or one dollar a year. And yet they can support every thing else, and most liberally too—Political newspapers, Fashionable Magazines, Publishers of trashy Novels, to say nothing of a host of bad habits, as tippling, the use of tobacco, tea and coffee, &c.; while often, too often, their stoutest advocates and truest friends are shamefully neglected! Now friends we protest against such a course. We want you to think more of your chosen avocation, and its reliance upon and use of the Press; so that it shall not thus be made the last and least object of your attention. Tell me if you can, why the Press should not and will not advance agriculture as well as Politics; and why, therefore, you, as as farmers, should not take Agricultural rather than Political Periodicals, if you can have but the one class? The secret is too obvious. Such persons underrate the importance of Agriculture, and do not think it worth while to try and improve it: they don't know the power and worth of the Agricultural Press, or they are guilty of a glaring, suicidal inconsistency in thus neglecting it.

In regard to other matters pertaining to your Agricultural practice—how is it? You are not going to be satisfied with having and doing things this year just as you did last, are you? Let's see. Wasn't that a miserable breed of hogs you fatted last year, that took twice the grain that neighbour B's did, and then didn't weigh as much? And those sheep of yours—coarse-wooled, are they not, so much so that you got only two-thirds as much as neighbour C. did for his? Those colts you raised and sold—were they not rather scrubby—and your milch cows, do they go dry half the year? And that natural fruit your trees bore, better than nothing to be sure, but far from being the fruit which you might have had just as well perhaps, and may now soon, if you only bestir yourself a little. Thus with improved kinds of tools, grains, vegetables, and the whole round of domestic and farm appendages. *Make a beginning*—get yourselves in the way of improvement—get something to work from, to add to—to stimulate you! If you can't get more than a single pig of neighbour B's improved breed, or one fine wooled lamb of neighbour C., or a single choice calf, or colt, or tree, to start with, *get that one*, and with care your whole stock may be improved by it in a few years.

Not that we should run mad after every new thing, or wish to try every new notion, by any means; but there is a vast fund of real, actual, solid improvement, peculiar to our age and profession, to which every farmer should have recourse, and by which he may in every sense of the word be a gainer.

A BOARD OF AGRICULTURE.

How often has it been said "Canada is a purely Agricultural Country," and yet how little has been done by the Legislature to forward its best interests! When we consider the importance of the profession of the hardy and sunbrowned tiller of the soil we are surprised that he has never received that attention at the hands of Parliament which he had a right to look for.—And yet he has had the making of these Parliaments, has duly voted at the general election for his Representatives, and paid more than his share of the taxes, forming the oil which keeps the great palavering Legislative machinery in motion. If the farmer has not been noticed by the "assembled wisdom," as he ought to have been, he has himself nearly wholly to blame, in choosing some whipper-snapping lawyer with no feelings akin to his, instead of a business-like frieze-coated weather-beaten, ploddling, industrious, and frugal

hard worker like himself. The provincial Agricultural Association, yet young and but of recent birth, has done something to bring the business of the farmer into notice, and reduce a system that which has hitherto depended upon chance signs and weather changes. The greatest effort of this Society, in our opinion has been in framing a Bill "to establish a Board of Agriculture, and to provide for the better organization of Agricultural Societies in Upper Canada." We find a copy of it in the *Canadian Agriculturist*, (a good paper devoted to the interests of the farming community, and which every farmer ought to subscribe for,) and as we conceive it to be one likely to aid much in the increase of national wealth, we condense its principal provisions. It provides, firstly, for the establishment of a Board of Agriculture in Upper Canada, to consist of 10 members. The Inspector General, and the Professor of Agriculture in the University of Toronto, an to be *ex-officio* members. The Chairman of this Board is to be appointed by the Governor of the Council, from amongst the members of the Upper or Lower House, but he is not to resign his seat in consequence of the acceptance of such office.—He is also to be a member of the Board of Registration and Statistics. The other seven Members of the Board are to be chosen from amongst a number selected by the Directors of every County Society—the highest seven being elected. Two members will annually retire, according to a plan laid down in the Bill. The Board is to have a Secretary, who will have an office in the public buildings at Toronto. The members are to be paid their actual expenses in coming to and returning from the place of Meeting, and the Meetings are to be held pursuant to adjournment, or at the call of the Chairman. It will be the duty of the Board "to examine into, and collect information upon such questions as concern the Agricultural interests of the Province, and to take such means as they may think best to promote those interests." They will also prepare an annual report, to be laid before the Legislature for publication. They will prepare, as soon as practicable a plan for the establishment of an experimental or illustrative Farm, in connection with the Chair of Agriculture in the University, or Normal School, and bring such plan before Parliament for action upon it. The Governor will be empowered to issue his warrant for the payment of expenses incurred by the Board, and they will be expected to furnish an annual detailed account of their expenditure. A clear and comprehensive system is laid down in the bill for the establishment of County and Township Agricultural Societies. The object aimed at is a good one, and we are happy that a Reform Administration will have an opportunity to forward it. It is high time that the occupation of the farmer was more respected, and there is good prospect now of a very necessary change.—*Journal & Express.*

Cure for Tetters and Ring-worms.—The juice of the common cranberry, expressed and daily applied, is a certain and safe cure for these troublesome inflictors, and leaves no stain nor abrasion of the skin.

THE GREAT INDUSTRIAL EXHIBITION.

The time fixed for the Grand Exhibition of the Works of Industry of all nations is the 1st of May, 1851. It will therefore be necessary that expedition should be used, in making preparations, if Canada is to be worthily represented. A Committee of the House of Assembly have had the matter under consideration, and have made the following Report. No decision has yet been come to by Parliament, but we confidently expect that an appropriation will be made, in accordance with the suggestion of the Committee. It has been asserted that the Exhibition will fail in England, for want of funds; but we think there need be little fear of that. Public attention does not seem to be much excited to the importance of the thing in Canada. Those who have assumed to act in the matter should bestir themselves :—

Legislative Assembly, 18th June, 1850.

Your Committee have taken communication of the following documents, which were appended to the Message of His Excellency the Governor-General. [The various documents are then specified.]

Your Committee have also taken into consideration a letter, dated 15th June, 1850, at Toronto, from Fred. Cumberland, Esq., representing the Committee of the Municipal Council, County of York ; the Comman Council, City of Toronto ; and the Toronto Mechanics' Institute, addressed to Col. Gugy, M.P., Chairman of this Committee, enclosing a Memorandum of certain suggestions made by that gentleman in the name of those bodies.

Your Committee have examined, lastly, a Proclamation, addressed to the public of Canada, by the Committee of the Montreal District, notifying the public that a Grand District Industrial Fair will be held in the City of Montreal, in September or October next, in connexion with the International Exhibition, to be held in London, in 1851.

The citizens of Montreal have thus the merit of taking the first step in aid to the original design, and they have acted with equal promptitude and liberality, in subscribing funds to a considerable amount. It is supposed that the sums so subscribed, added to one of £100, the gift of His Excellency, the Governor-General, amounting at present to upwards of £500, will not, eventually, fall far short of £1,000. This money was originally intended, it is true, to be disposed of in aid of the District Exhibition hereinbefore mentioned ; but your Committee are of opinion that it would be more calculated to excite a spirit of generous emulation, and be more in accordance with those enlarged views which are invariably conducive to the public good, that all such partial efforts should be merged into one, embracing the whole of United Canada. It is evident, too, that unless every object destined for Exhibition in England be previously compared, and the selection made here, two articles of the same kind might be exhibit-

ed there; and whether, as it is probable, one were inferior to the other or not, this would, in fact, bring the different sections of the Province into competition in England.

Your Committee therefore learn, with satisfaction, that the subscribers in Montreal are willing to place their funds in the hands of any Commissioners to be duly appointed to superintend a Provincial Exhibition.

Your Committee would, in the first place, invite every section of the Province to contribute by subscription to the common fund, and that the same be placed at the disposal of the Commissioners to be named by His Excellency, the Governor-General. They recommend that a Commission be accordingly issued, addressed to gentlemen qualified to carry out the design, who will communicate with the Commissioners named by the Queen.

Your Committee also recommend to your Honourable House, that in addition to the amount subscribed and to be subscribed, a grant of £2,000 be made to the Commissioners to be so named, to award premiums to successful competitors, and to enable them to defray the necessary expenses, as well on the spot, as those incidental to the transmission to England of the objects selected for ultimate exhibition there.

Your Committee are of opinion that the members of the Commission should take for their guidance the documents hereinbefore-mentioned; and that all matters of detail should be confided to them. It is further the opinion of your Committee, that one or more persons, to be appointed by His Excellency the Governor-General, should proceed to England, in charge of the objects selected for Exhibition.

On this basis your Committee recommend that an Industrial Exhibition for all Canada should be held at Montreal, on the second Monday in October next, and on the two subsequent days.

[COPY OF EARL GREY'S DESPATCH.]

Downing Street, 18th April, 1850.

My Lord,—With reference to my Circular Despatch of the 3rd instant, I have the honour to inform you that Her Majesty's Commissioners, for the Exhibition of 1851, have taken into consideration the question of the amount of space which can be allotted, in the building to be erected in this Metropolis, to the articles sent for Exhibition from the various Dependencies of the British Crown, and that they have decided on apportioning 8,000 square feet to Canada.

It is to be observed, that of the whole gross space thus allotted to the Colonies, about one-half will be reserved for passages and other purposes, and therefore the proper allowance must be made on this account, in your calculation of the quantity to be sent.

As it is indispensably necessary that the Commissioners should, at as early a date as possible, receive information as to the extent to which the Colony, under your Government, is prepared to avail itself of the space reserved for it, you will take every means in your power for procuring such information, and transmit the same to me, distinguishing the proportion of space which will be required under each of the four main divisions, of Raw Materials, Machinery, Manufactured Articles, and Objects of Fine Art, into which, as you are already aware, it is proposed to classify the Exhibition.

I am, &c.

(Signed) GREY.

The Right Honourable
The Earl of Elgin and Kincardine, &c. &c. &c.

Memorandum *of Suggestions offered to the Special Committee of the House of Assembly, appointed in reference to the Great Industrial Exhibition, to be held at London, in* 1850.

1. That Local Exhibitions shall be held in the various Municipalities throughout the Province, with the view especially of inducing competition in such articles of produce as are peculiar to such localities, and, generally, in such as are common to the Province.

2. That *one* Great Provincial Exhibition be established for the United Province, whither the prize articles, and others of sufficient merit, shall be forwarded from the Local Exhibitions.

3. That any Parliamentary grant to be made in aid of the representation of Canada, at the London Exhibition, shall be devoted to the purposes of the Provincial Exhibition, and the transmission from thence to London of such articles as shall be adjudged worthy.

4. That the Local Exhibitions shall be conducted at the expense of the localities, independent of the Parliamentary grant; and that any profits therefrom shall be given in aid of the Provincial Exhibition.

5. That Parliament shall determine the place and time at which the Provincial Exhibition shall be held.

The Joint Committee would, however, suggest Montreal, as well on account of its geographical position, as of the energy with which its inhabitants have hitherto acted in the matter.

6. That, in determining the place and time at which the Provincial Exhibition shall be held, it would be prudent to avoid any union of such Exhibition with any other of an annual or local character which might involve a confusion of purposes, or a diversion of the Parliamentary grant from the special object for which it shall have been made.

7. The Montreal Association, The Agricultural Association of Upper Canada, The Kingston and Toronto Institutes, having appointed September for their Local Exhibitions, the second week in October appears to be the earliest period which can safely be named for the Provincial Exhibition.

8. That a Commission be appointed, to which shall be entrusted the conduct and management of the Provincial Exhibition, whereby an unity of action in the various localities will be best secured.

9. That some competent person shall be entrusted with the care of such articles as shall be transmitted to England from the Provincial Exhibition; with a view, as well to their safe conduct, as to their arrangement in the London Exhibition, and, if possible, to the direction of public interest there towards those Canadian products to which it may be especially desirable to attract commercial attention.

10. It is suggested that such Commission, as that above referred to, should be appointed with the least possible delay, the localities being anxious for guidance in the course to be pursued.

FRED. CUMBERLAND,

For Joint Commiteee of
The Municipal Council, County of York:
The Common Council, City of Toronto:
The Toronto Mechanics' Institute.

County Court House,
Toronto, 15th June, 1850.

THE WORLD'S INDUSTRIAL EXHIBITION.

To the Editor of the Canadian Agriculturist.

SIR—

The Grand National Industrial Exhibition projected by His Royal Highness Prince Albert, and to come off in London in May, 1851, will, if carried out in accordance with the spirit and intention of its noble founder, produce incalculable benefits to Great Britain and those Colonies that participate in it, as well as to the civilized world at large. It is reported that voluntary subscriptions to aid in the furtherance of this great undertaking have reached a large amount, and it is to be confidently hoped that public liberality is only beginning to shew itself. The Imperial Government should at once come forward and pledge the Nation from the public purse in a sum equal to that which shall have been subscribed by individuals in Great Britain, to be awarded as prizes and to defray the expenses attendant upon the exhibition. The same course should be pursued in the Colonies. All the different Provincial Legislatures should vote a sum equal to the amount collected by private subscription, in order to make the necessary preparations for having the Colonies fully represented. But this grant should by no means interfere with that now given to the several Agricultural Associations established in the Provinces.

In reference to the articles to be sent forward to the exhibition, I would beg leave to differ from some persons who think that they should be restricted to those in which we can excel Great Britain and other nations. Perhaps we do possess articles which may compete with any country, nevertheless my opinion is that we should send forward the best of everything produced in the Colonies—say the different kinds of ores, both in their crude and manufactured state,—specimens of marble, gypsum and water-lime; samples of the produce of our fisheries, put up in the best manner; pork, beef, hams, butter, and cheese, in casks of finest workmanship; samples of flax, hemp, tobacco, maple sugar and beet sugar; choice samples of all the kinds of wheat, corn, barley, rye, oats, and peas, should be carefully selected and put up in packages; samples of fruit and all the varieties of garden and florist seeds; all kinds of edible roots; in general, specimens of all the produce of the Florist, the Gardener, the Horticulturist and the Agriculturist should be brought forward to competition, and although many of the articles may fail in securing prizes, they will, when offered for sale after the exhibition, command highly remunerative prices.

I feel confident that one great object of His Royal Highness in instituting this grand exhibition is to ascertain the capabilities of the Colonies, and as this cannot be certainly known unless every thing produced therein be sent forward, I would beg to suggest the propriety of the British Government sending out a vessel to each of her principal Colonies in order to transmit those articles intended for the exhibition free of charge. This would be a step worthy of the British people. It cannot be supposed that the Colonies can contend successfully with the United States, or with Britain, France, or other European Nations, where the arts have carried improvement almost to its utmost stretch. It will, no doubt, suggest itself to the Royal mover that two sets of prizes will be required. The first for the Colonies to compete for by themselves, and when the premiums shall have been awarded to the best colonial products they can enter the lists with all the world.

I would further suggest that Delegates be appointed from each of our District Societies to attend the exhibition, and that such Deputation consist of one Agriculturist, one Mechanic, and one Manufacturer from each District, and also a Gardener, a Florist, and an Horticulturist, from each large Town or City, and that the vessel carrying the articles for exhibition give to each of them a free passage to and from London. These Delegates being chosen from the intelligent classes in the community would bring back with them a fund of useful knowledge which would be scattered through the length and breadth of all the colonies under the Crown, the result of which would at no distant day produce the most salutary effects.

I hope that these few remarks may be well received, and that they will elicit suggestions from others that will arouse the public mind to the importance of the subject, and induce many Farmers and Mechanics and Manufacturers to aid in carrying forward this great undertaking.

Should you think the foregoing suggestions worthy of a place in your valuable journal you are at liberty to insert this communication.

CHAS. P. TREADWELL,
President of the Agricultural Society of the united Counties of Prescott and Russell.

L'Original, 21st May, 1850.

AGRICULTURAL ASSOCIATION OF UPPER CANADA.

ADDRESS OF THE SENIOR VICE-PRESIDENT.

I have been deputed by the Directors of the Association, to inform the inhabitants of this part of the Province, that arrangements are now being made for holding the Annual Exhibition at the Town of Niagara, on the 18th, 19th, and 20th of September next.

This paper is not put forth for the purpose of urging the Inhabitants of Canada to increase their zeal and good wishes for the prosperity of the Agricultural Communities, because public opinion and public spirit have been so decidedly declared in its favour in former years, that no doubt now remains in the public mind of the usefulness and advantages to be derived from the Annual Fair and Exhibition to the people of this growing country; therefore my task is reduced to the pleasing one of merely reminding members of Agricultural Societies, and our Agricultural friends, that their subscriptions in aid of the Association for

the year 1850, ought to be remitted if possible, in the month of August next, to Thomas Ridout, Esq., Cashier of the Bank of Upper Canada, or paid into any Branch Bank for that purpose; this, together with the hope that the Government money voted for the encouragement of Agriculture, will be promptly paid to the County Societies in that month, in accordance with the intention of the Legislature, and that all the friends of Agriculture in the Parliament, (which means every body there,) will not fail in using their best endeavours to obtain a special Grant for the benefit of the Association; thereby placing the Officers of the Institution in funds sufficient for the payment of premiums, and all other demands on the last day of the Exhibition. Such arrangements will obviate and prevent the difficulties that have heretofore been experienced in carrying forward the business of the Association, and tend to give more general satisfaction throughout the whole length and breadth of the land. Many worthy farmers it is well known, make great exertions in fostering animals and crops for the purpose of exhibiting them at our Annual Show, and those who may be fortunate in gaining premiums, will be then doubly satisfied on finding the money ready on the spot, for payment of their merited claims.

Money must be had, and money can be alway obtained for promoting the interests of Agriculture, provided the Agriculturists themselves will unite their exertions in the cause. Large sums from individuals cannot be expected, but by bringing the subject matter of the Institution fairly before the public, a trifle from each will accomplish the business. Probably the present is the most suitable season for setting this note forward; the seed and potatoe planting season at the eastward has been just finished; at the westward the clover is not yet generally fit for the scythe; therefore we have a less press of farming business now than at most other times, so that an hour can be devoted to inquiring into the state of our respective Agricultural Societies, and make certain that the Office Bearers in every County have voted a subscription in aid of the Provincial Agricultural Association for the present year. If this be not already done, then, let us bestir ourselves and find out the reason, and where necessary, cause a general meeting of the Society to be holden for the purpose. In this way funds will quickly go forward sufficient to carry out the arrangements of the Exhibition in all its branches in a manner that will do credit to the country, and to all concerned therein. To prevent the possibility of any misunderstanding taking place regarding the subscriptions from the several Agricultural Societies in the Province, Mr. Buckland, the respected Secretary to the Association, has been instructed to correspond immediately with the President or Secretary of each Society on the subject.

The site for the Show Grounds has been selected at Niagara, between the Town and the Steamboat landing; probably a more eligible or convenient spot cannot be easily found and a very efficient local Executive Committee has been appointed at Niagara, to make contracts for enclosing the Show Grounds, and to make all other necessary arrangements for carrying forward the business of the Exhibition. We have great confidence that this onerous duty will be performed with ability, zeal and activity in the best possible manner; the beautiful grounds near to the Town of Niagara, the grand scenery at Queenston Heights from the monument and shrine of the lamented General Brock, and the splendour of the Niagara Falls, will all combine with the Exhibition in attracting visitors from all the cities towns and villages round the borders of the great lakes; besides, the facilities of travelling, round the lakes in the numerous elegant daily steamboats, the Through Line from Quebec and Montreal, will bring large cargoes of passengers up the River St. Lawrence. This together with a large concourse of persons from the American country, will, we trust, render the Fair and Show of Upper Canada very attractive, and we hope it may prove the best that we have had the pleasure of witnessing at this newly established National Institution.

Members of the Agricultural Societies in Eastern Canada, and the members of some of the American Societies, will be particularly invited to favor us with their presence, and to remain at Niagara during the Exhibition; the Secretary will make these invitations and the Executive Committee of Management will appoint a sub-committee to receive and introduce strangers and friends from distant parts.

JOHN BENNETT MARKS,
First Vice President.

Barriefield, near Kingston,
June 24, 1850.

ENCOURAGING SIGNS.

One of the best signs of the times, for country people, is the increase of agricultural papers in number, and the still greater increase of subscribers. When the Albany Cultivator stood nearly alone in the field, some fifteen years ago, and boasted of 20,000 subscribers, it was thought a marvellous thing,—this interest in the intellectual part of farming; and there were those who thought it "could not last long." Now that there are dozens of agricultural journals, with hundreds of thousands of readers, the interest in "book farming" is at least beginning to be looked upon as something significant; and the agricultural press *begins* to feel that it is of some account in the *commonwealth*. When it does something more —when it rouses the farming class to a sense of its rights in the state—its rights to a good education, to agricultural schools, to a place in the legislative halls, where farmers shall not be only talked about in complimentary phrase, as "honest yeomen," or the "bone and sinew of the country," but see and feel, by the comparison of power and influence with the commercial and professional classes, that they are such, then we shall not hear so much about the dangers of the republic, but more of the intelligence and good sense of the people.

Among the good signs of the times, we notice

the establishment of an Agricultural Bureau at Washington. At its head has been placed, for the present at least, Dr. Lee, the editor of the Genesee Farmer,—a man thoroughly alive to the interest of the cultivators of the soil, and awake to the unjust estimation practically placed up on farmers by both themselves and the country at large. If he does his duty, as we think he will, in collecting and presenting statistics, and other information, showing the importance and value of the Agriculture of the United States, we believe this Agricultural Bureau will be of vast service, if only in showing the farmers their own strength for all good purposes, if they will only first educate, and then use their power.

In our more immediate department—horticulture—there are the most cheering signs of improvement in every direction. In all parts of the country, but especially at the West, horticultural societies are being formed. We think Ohio alone numbers five at this moment. And as the bare formation of such societies shows the existence of a little more than private zeal on the part of the inhabitants in gardening matters, we may take it for granted that the culture of gardens is making progress at the west, with a rapidity commensurate to the wonderful growth there in other respects.—*Horticulturist.*

Wrong application of Manure.— Many valuable essays have been published, relative to the best mode of applying manures; yet instances are numerous where farmers and others, instead of placing them in a situation to be received by living vegetables, apply them in abundance to seasoned timber, and to their own organs of respiration. For instance, they pile heaps six feet high, against their barns,perhaps under their stable windows; and the right proportion of moisture being present, when the weather becomes sufficiently warm, a decomposition takes place, and two thirds of all that is valuable escapes in gas, to poison themselves and neighbours, and annoy all who may pass to the leeward of the pile. A few moments labour in turning over the stack, would prevent this active fermentation, save their buildings, retain their manure, and preserve the health of their own and their neighbours' families.—*Gen. Far.*

BERKSHIRE PIGS.

What has become of all the Berkshires with which the country abounded a few years ago? We have not seen a real genuine Berkshire in many a day—the few which make any pretension to the name, being at least but mongrels, and unworthy to claim any relation to the noble race which a few years ago were so much admired by all lovers of good pork. We ask, again, what has become of the genuine Berkshires?—and we pause for a reply, trusting that some of our readers may be able to answer a question so important to the farmer.

We are not among those who believe that the Berkshires are the only breed worthy of *cultivation;* but we have been accustomed to consider them a very good specimen of the swinish family, and worthy of being kept in their purity, if for no other purpose than to cross with other breeds.—There may be better breeds of swine than the Berkshire, but we are strongly inclined to the opinion that there has not been, in the last three years, so good an exhibition in this department, at any of our Cattle Shows, County or State, as we were accustomed to see when the Berkshires were in their glory.

We doubt whether any of the breeds have been retained in their purity, in very great numbers, in this part of the country. The general opinion among the farmers seems to have been, that a mixture of different breeds is best suited to their wants. This view may be correct, but it would nevertheless seem necessary to preserve in their purity the animals used for breeding. They may then be crossed to suit the interest or the fancy of the breeder.—*R. N. Yorker.*

BREAKING YOUNG STEERS—OXEN.

This is the right period to commence breaking young steers, which are coming two years old in the spring, When broke thus early, and in a proper manner, they make incomparably better working oxen. They are never refractory, sullen, or unmanageable—they become accustomed to one another, and the yoke is a second nature to them—they are more tractable, and are worked with less noise and bluster.

There is great importance attached to the habit, that they may be easily accustomed to in walking fast, and that habit is gained by never overloading them while young and thus learning them a fast gait. Of two yoke equally valuable, one fast walkers and the other slow, one will, for work, be worth one half more than the other. In fact it is one of the most important features to attend to, till they have got their full strength. Some persons effect this by driving a span of horess ahead of them, to draw the load and them too, if they do not come up to the required pace.

Always use good long yokes for farm purposes, and the steers will never contract the habit of *crowding* or *hauling*, which fault often renders them almost worthless.

The use of oxen is fast going out of fashion in the western counties, an error we are sorry to see, as there is no more useful and economical animal on the farm. The Ox-Cart is a thing that was, and there is danger that the patient, willing ox, as a farm servant, is a doomed animal.—*R. N. Yorker.*

An humble man has been aptly compared to a noble tree, whose branches are well laden and bowed down with good fruit.

ADULTERATION OF GUANO.

We have long known that this celebrated manure, so powerful in a genuine state, has been subject to various kinds of adulteration, by the admixture of inferior, and often worthless ingredients. In a recent number of the *Gardeners' Chronicle*, it is stated that a hill of considerable size in the vicinity of London is fast disappearing: the materials, consisting of a light kind of loam, being dried on hot-iron plates, are afterwards mixed with a small quantity of genuine guano, and strongly impregnated with the fumes of ammonia, and are then palmed off on the farmers of England for African or Peruvian guano. The business doing is said to be considerable, and the profits, of course, are very great. We can hardly think, however, that in the present day such an audacious cheat can long be practised with success. It is well known that when Professor Johnston was appointed consulting chemist to the Highland Society, some years since, adulterated guano was soon driven out of the market in Scotland; and we believe that there is not now a parish in England which does not possess some one sufficiently informed to be able to detect so gross and palpable an imposition as the one above stated.

AGRICULTURAL IMPROVEMENT IN IRELAND.

From recent information, we learn, that, from one cause or other, the important movement of agricultural improvement has been commenced in right earnest, in several parts of Ireland. The Board of Education, the new Colleges, and the great National Improvement Society, with its Provincial Branches, together with the operation of the recent law, under which entailed estates, involved in hopeless embarrassments, may be divided and sold: all these agencies seem combining for Ireland's welfare. The Secretary of the *Agricultural Improvement Society* lately presented a draft of instructions, for the guidance and direction of the Teachers employed in the several districts. Among the leading subjects, we select the following:—The necessity of turning-up and digging the tillage land deeply and well in winter, in order to expose it to the effects of frosts, and to prepare it for cultivation in spring. Ditching, underground draining, levelling all unnecessary banks and ditches, and spreading their contents, either in compost or otherwise, upon the land. The husbanding of manures, collecting weeds, scouring ditches, and accumulating bog-mould, sand, sea-weed, or dung-heaps, &c. When political and party agitation ceases to become a trade in Ireland, and the public mind directed in earnest to her immense industrial resources, the advent of that country's greatness and prosperity may be considered at hand.

CHOLIC IN HORSES.

We often see horses in great distress, when we attribute it to the bots. They lie down, groan, roll over, cast the head around to the flank, thus indicating that the distress is there. Although symptoms similar to these, indicate the bots, still I am persuaded the ailment is cholic in ten instances, where it is bots in a single instance. Acidity in the stomach, occasioned by sour mill feed, or whatever cause may produce flatulency, will induce an attack of cholic. For this ailment, the use of alkalies is an efficacious remedy.

I was once at the stable of an eminent owner and breeder of blood horses, in Dutchess County; and in speaking of his care, mode of culture, and success in rearing and using horses, he remarked, that the usual number in his ownership was about thirty, of all ages and characters. That it had been his invariable custom to administer a small amount of dry ashes in the food to each horse once a week. And that for the period of thirty years, he had not been troubled with a sick horse. I have for several years resorted to this practice, not indeed with the uniformity it merited, but still with satisfactory results. Now, at a period when root culture is so deservedly coming into general esteem, as furnishing valuable winter food for stock, this practice, as a preventive remedy, may be highly useful. It would not be surprising, if in some given circumstances of the horse's condition, a mess of green succulent roots might induce an attack of cholic. The celebrated horse, "Duroc," the sire of "American Eclipse," died, as was supposed, from an attack of cholic, produced by a feed of potatoes, when his system happened not to be in safe condition for such food. A small amount of this remedy, given at regular periods, would almost insure against tendencies of this sort.—*Cor. New Yorker.*

WARTS ON HORSES.

In the cultivator of September 15th, I noticed a communication of G. Powers, wishing to be informed of something that would cure warts upon his horse, as also your remarks thereon; and would say to him, that by the application of spirits of turpentine, the warts will be entirely removed.

CURE FOR HEAVES IN HORSES.—A farmer tells us that he has recently cured two of his horses, which had the heaves badly, by the use of the following remedy: To three quarts of sweet milk add a teaspoonful of sulphuric acid, (oil of vitriol), and mix with the horse's feed. Give at first three times a week, and afterwards once or twice, as there may seem occasion, for a few weeks longer. Our informant says there was little appearance of the heaves after the first week.—*Christian Alliance.*

BUFFALO HORTICULTURAL SOCIETY.

We had the pleasure of being present at the Exhibition of this Society, on the 2nd instant. In consequence of the backwardness of the season, this was the first Show of the year. The display of flowers and fruits was highly creditable, and the large room was well-filled in the evening with both ladies and gentlemen, who evidently felt a deep interest in the objects of this useful Society. The Show was exceedingly rich in strawberries, a greater or better display of which we never observed this side of the Atlantic; very great attention is now bestowed on the cultivation of this wholesome and delicious fruit in the Northern States: some specimens of *Hovey's Seedling* were remarkably fine. Of cherries there were several varieties, most of them good; but we fancy the May Duke and Blackhart do not attain so large a size in this country as in England. The recent heavy rains had somewhat injured the appearance and quality both of cherries and strawberries. Of gooseberries there were but few, but those were of large size; we should think the heavy soil around Buffalo favorable to the successful cultivation of this fruit. There were some gigantic specimens of rhubarb, which now seems as much relished in the New World as in the Old. Edible roots, such as carrots, parsnips, beets, radishes, &c., must be pronounced forward, and of healthy growth, considering the unfavorable character of the season. Of the flowers we can scarcely venture to speak. So rich a display of nature's beautiful productions, improved and variegated by art, was at once delightful to the eye and captivating to the heart. We should be guilty of an unpardonable omission, if we did not say that the ladies of Buffalo displayed no common degree of industry and correct taste, in the chaste and beautiful arrangement of this department of the Exhibition.

As the connection is intimate between the garden and the field, we may be allowed to observe, in this place, that we paid a visit to two eminent agriculturists in this section of the State of New York, Messrs. Allen and Sotham. Mr. Allen has about a thousand acres of the southern portion of Grand Island, in the Niagara River—a spot capable of being made one of the most delightful for a residence, and possessing great natural advantages for agricultural and grazing purposes. To the breeding of stock Mr. Allen has hitherto devoted his principal attention, and among his present herd we noticed several fine specimens of Devons and Short Horns. He is, however, beginning to devote attention to the cultivation of fruit on an extensive scale, having already some sixty or seventy acres planted with apples, pears, plums, cherries, peaches, &c. The contiguity to the thriving and populous city of Buffalo will, we trust, make this a profitable enterprise. Mr. Sotham occupies a similar tract on the opposite shore, dovoted, in great measure, to the purposes of dairying and breeding. Here are to be found representatives of that breed of cattle so much and long esteemed in Britain, the *Hereford*, which Mr. Sotham has been at much pains and expense to introduce and naturalise, from the purest and best blood in England. This valuable breed is extending in the States, and we could wish to see it introduced into Canada. Our people will probably have an opportunity of seeing and purchasing specimens of Mr. Sotham's stock, at the approaching Provincial Fair. This gentleman keeps some 70 or 80 cows, for the purpose of supplying Buffalo with milk, which, we are informed, is a profitable business, although the average price of that article is consideraby lower than in Toronto.

We crossed the boundary-line on the evening previous to the celebrated July 4th, with desires strengthened, and hopes still brighter, that the two great nations here reposing by each other, and so nearly connected by ties of ancestry and blood, may long continue intimately united by those of friendship, mutual interest, and the interchange of neighborly offices. May Great Britain and America remain for ever united in the bonds of a fraternal fellowship! and thus read a salutary lesson to the world, on the advantages and blessings of cultivating the arts of peace, and of furthering the interests of a progressive civilization.

HOW TO MAKE DELICATE SEEDS GROW.

BY PROFESSOR LINDLEY.

"How am I to sow my flower seeds?" "I have had some beautiful flower seeds given to me but I have no gardener, and I dont know what to do with them." I don't know how it is, but my gardener never *can* get his seeds to grow. What *shall* I do?" "How deep sir, *would* you advise me to bury my seeds?"

Such are the sounds of woe with which our ears are not uncommonly assailed. That information is much wanted in this matter is most certain; that endless mistakes follow in the train of all vague directions nobody can doubt; that seed sowing does demand some "knack" and practice we readily admit, and therefore we shall

on this occasion utter no *vox ambigua*, but cut the matter short by saying, "Don't bury your seeds at all!"

We can quite imagine the surprise that this announcement will occasion in some minds; but we presume to hope that when we have been heard to an end, the recommendation will not be thought so paradoxical as it appears to be.

Let us, in the first place, ask why seeds *are* buried alive under clods of earth? Does Nature thus inter them? And if so, who or what is her grave-digger? When the acorn falls it has no power of wriggling into a hole in the ground, and when the chickweed scatters its tiny seeds they lie and grow where they fall. What reasons, then, *can* gardiners have for making themselves seminal sextons?

"Reasons!" says the man of learning, "I will give you fifty; firstly, a seed must have darkness and oxide of hydrogen in order to germinate; under these influences its C combines with the O of the latter, and forms CO_2 which is extricated; then distaste comes into play, and the amylaceous particles are saccharified; third!y"—but hold—enough of that. "Reasons!" says Mr. Polyanthus, the gardener, "why how are you to keep the birds off if you do not bury the seeds? or the mice? or such vermin. How are you to keep them moist when they first chip the shell? How are they to hold to the soil when they have got a root? Reasons enough are these, I think."

Certainly. But, then, cannot all these objects be secured by other means than burial?" Let us see.

We want fine dry soil. First provide that; get the ground level, and press it gently with a piece of tile or glass. If it contains stones or clods remove them. If your seeds are very small, sift over it a little silver sand, or peat; upon this scatter the seeds *thinly*. If they are excessively small mix them before sowing with dry sand or peat, in order to separate them; and again with gentleness press all flat.

Then provide some coarse Moss—any sort will do; but Bog-moss or Sphagnum is the best—having previously soaked it in boiling water to kill insects or their eggs. Press it till its wetness is exchanged for dampness, and then, while warm, scatter it *loosely* over the seeds. Press it down; invert over the Moss a common garden pot, lay a tile on the hole, and the operation is performed.

But the little apparatus thus contrived must be watched. In a day or two lift up the pot, raise the Moss, and examine the seeds. If the moss is dry, which is not likely to happen, again damp it with *warm* water. If all is still, have patience.—Thus go on until you find your seeds *beginning* to grow. Then remove the tile from the hole in your pot, and leave them for another day. At the end of that time you will possibly find that the seeds have grown much more; if so take away a part of the moss, so as to give the young things more air and light. The next day, raise the pot on one side, so as to open it to the south. This may be done with a stone placed beneath its front edge; but do not raise it all round, because if you do the strong current of air setting over your seedlings and through the hole in the pot will chill them. As soon as you find the seedlings green and plump and stout, the moss may be entirely removed and the pot raised higher. And very soon that, too, may be quite dispensed with, unless there are frosts at night, or bitter dry easterly winds by day. In the former case, replace the pot every night and take it off again in the morning; in the latter, it is wise to place a little screen between the plants and the wind. For this purpose a pantile is a capital thing, but a piece of board, or any such matter, will do.

In this way you secure all that you want in order to get a hardy seed to grow: darkness, moisture, air, warmth; and afterwards moisture, air, light, and shelter.

Let no one say that large seeds cannot thus be raised. The finest Oaks spring from acorns dropped in the forest and covered by a few leaves.—The Sycamore, the Ash, the Beech, the Horse Chesnut will all sow themselves wherever their seeds can stick to the ground until a coverlet of leaves is moistened by an April shower and warmed by an April sun. Neither have such seeds any difficulty in steadying themselves by their roots; a long fang is driven by vital impulse into the earth, and it is to that, and not to a bit of the buried neck of the stem, that the seedling trusts for support and nourishment.

We will only add one word. Those who have ever attempted to sow seeds upon rock-work, know to their cost how very difficult it is to make such seeds take root. The method now proposed answers the end completely, and it is the only plan, which in difficult cases, does succeed.—*Experto crede Roberto.—Horticulturist.*

Oaks.—Frof. Beck says the oaks of the forest are known with tolerable certainty to attain the age of 800 or 900 years, and are the most aged trees that we possess. Pines are stated by Dr. Williams, in his history of Vermont, to live from 350 to 400 years. Of the oaks comprised under the Linnæan genus quercus, botanists are acquainted with more than 400 species, of which upwards of one half belonged to America. In this State there are fifteen different species, as follows: Mossy cup, post white, swamp white, swamp chesnut, yellow rock chesnut, dwarf chesnut, willow, black acrub, black, red or scarlet, pine, and red oak. The white oak is the most valuable of all, being extensively employed in ship building. In England, in 100 years' time, the price of ship building was 100 per cent. Sinclare, in his code of Agriculture, stated that a 74 gun ship requires 3,000 loads of wood, the product of 50 acres, each tree standing 33 feet apart.—Hence the importance of cultivating the oak, and where the young trees are raised, the

ground should be cultivated for 20 years at least.

THE SHAPE OF ORCHARD TREES.

(*From the Scottish Agricultural Journal.*)

Each kind of tree has its natural shape. Some trees grow spirally like the larch, or in a fastigiate manner, like the Lombardy poplar; others are, in nursery language, round or clump-headed, or, like the cedar as described in the inspired volume, have their tops hid among the thick boughs.—Fruit trees in an orchard, if allowed to take their natural shape, will manifest great diversity in their mode of growth. Some pear trees will ascend toweringly, and many apple trees will assume round or ruggedly picturesque forms but in all cases it will be found that the strong limbs are centrically situated, and that the higher branches do not overshadow the lower. The "bell shaped" mode of training, so often advocated by horticultural writers, is therefore unnatural, and it is always found in practice to be insufficient.—When a young tree is to be trained in this manner, the branches are set off so as to form a hollow in the centre, like a bowl or inverted umbrella; and for a time the tree bears well; but when it begins to grow old, and is no longer annually visited by the pruner, a mass of spray arises in the centre, and at last the sun's rays can only act on the outer twigs, and all the heart of the tree becomes barren, or only produces inferior and insipid fruit. The upward growth of spray in the centre of the inverted "bell," shows that the natural disposition of the tree has been interfered with, and that nature is asserting her prerogative. But the evil has been accomplished; and attempts to prune a grown up tree that has been thus mismanaged, are found ineffectual, or rather tend to increase the evil; for masses of barren spray arise up wherever a branch has been cut off; the outer twigs become limber and weak, and the fruit is easily shaken off by a gale of wind. The disadvantages incident to this mode of training can never be counterbalanced by that "spreading out of the branches so as to receive the gentle dew," which the advocates of bell training have mentioned as recommendatory of their system. A preferable mode of training is that which has been called conical or pyramidal. When a young tree, whether apple, pear, cherry or plum, is to be trained in this manner, the central shoot is allowed to grow perpendicularly, and the lower branches are bent down so as to assume a horizontal position. The tree, while still young, is so pruned as to maintain a spiral form—the lowest branches extending farthest from the stem. A full-grown tree that has been thus trained when young, does necessarily look stiff and formal, but may rather approach much nearer to the shape which it would naturally have assumed, had no training been given. In an old orchard, where the trees have been all trained spirally when young (supposing such an orchard to be in existence), there will be found much diversity in the shape of the trees, for each will have assumed somewhat of its natural habit; but all will be in a fruitful condition, in as far as fruitfulness is affected by training. There are some old pear trees in the Carse of Gowrie orchards which had been allowed to grow as they pleased, and which had consequently assumed the aspiring, conical form natural to them; and it is uniformly from such trees that those amazingly great returns of fruit are produced which are from time to time recorded in the newspapers. When a fruit tree is spirally shaped, the sun shines on all its branches, and to some extent on all parts of them; and finely ripened fruit may be gathered even from the heart of the tree, close by the stem, and at a point of space where, in the case of a bell-shaped tree, there would be nothing but shade, gloom and barrenness. The lovers of the picturesque may object to conical training as being stiff and formal; but the objection is baseless. In the first place, as has already been remarked, the result of this mode of training will be a nearer approach to natural shapes than if the other, older, and more common mode had been practiced; and then, though the trees may have a formal shape when young, and in the course of training, it must be remembered that this is not altogether incongruous in an orchard where the trees themselves are planted in straight rows, and where every thing shows the presence of art. When fruit trees are planted on a lawn, for the sake of beauty as well as of utility, little training is requisite, and they will naturally assume, more or less, a spiral shape. Even those that are naturally round headed will have their stems ascending perpendicularly; and there will be no thick and useless spray, and no overshadowing of one branch by the one above it. It would seem that fruit trees in most of our orchards have been pruned and restrained in their growth for the purpose of making them unfruitful. Those who have studied Gavin Cree's system of pruning forest trees will easily perceive the physiological advantage which a spiral headed tree possesses over one that has had its form mangled by the "bell" trainer.

Deep Planting is always to be avoided. We have an illustration of this error in our garden—two trees, side by side, which were planted five years ago, and were then of equal size. One was planted as deep as it previously stood, and is now twice as large as the other, which was planted a foot deeper and has produced no fruit, while the former has yielded abundantly for the last two years.—*Granite Farmer.*

THE PITCHER PLANT.

This plant abounds in the stony and sterile parts of the Island of Java, from which were it not for this vegetable wonder, small birds and quadrupeds would be forced to migrate in quest of water. At the foot stalk of each, is a bag shaped exactly like a pitcher furnished with a lid, and having a

kind of hinge that passes over the handle of the pitcher, and connects it with the leaf. This hinge is a strong fibre, which contracts in showery weather and when the dew falls. Numerous little goblets filled with sweet fresh water are thus held forth, and afford a delicious draught to the tiny animals that climb their branches, and to a variety of winged visitants. But no sooner has the cloud passed by, and the warm sun shown forth, than the heated fibre begins to expand, and closes the goblet so firmly as to prevent evaporation, precluding a farther supply till called for by the wants of another day. This beautiful and perfect provision of nature would afford a fine theme for Thompson or Wordsworth, and would afford an illustration of the design of Providence, such as Paley would have delighted to press into his service.

Cleansing the Bark of Fruit Trees.—We have often recommended the use of whale oil, soap, potash, &c., for the cleansing the bark of fruit trees, and supposed that no application could exceed it for this purpose. A few weeks since we visited the seat of Robert Rennie, Esq., near the Lodi Print Works, and there saw the cleanest fruit trees it has ever been our lot to meet with. Mr. Rennie informed us that he used a solution made of one pound of best bleachers' soda, dissolved in one gallon of water, and applied it to the surface of his trees. All the fungi, dead bark, &c., are softened and readily exfoliate from the healthy part of the bark during the growth of the tree—the surfaces of the cherry, peach, plum, nectarine, apricot, and many other kinds of trees seemed polished, and of a colour more closely resembling the new growth at the ends of branches than usual; the trees were in excellent health, and we were informed that they bore superior crops to those not so treated. Within the last few days we have applied the soda wash to our trees, and for the purpose of ascertaining if so strong a solution would injure the tender parts of plants, have sprinkled it over the leaves of many tender shrubs, but as yet they are uninjured, while the inert parts of vegetables are readily decomposed by it.—*Working Farmer.*

PRESERVES AND JELLIES.

From Miss Beecher's Domestic Receipt Book.

General Directions.—Gather fruit when it is dry.

Long boiling hardens the fruit.

Pour boiling water over the sieves used, and wring out jelly bags in hot water the moment you are to use them.

Do not squeeze while straining through jelly bags.

Let the pots and jars containing sweetmeats just made, remain uncovered three days.

Lay brandy papers over the top, cover them tight, and seal them, or, what is best of all, soak a split bladder and tie it tight over them. In drying, it will shrink so as to be perfectly air-tight.

Keep them in a dry, but not warm place.

A thick leathery mould helps to preserve fruit; but when mould appears in specks, the preserves must be scalded in a warm oven, or be set into hot water, which then must boil till the preserves are scalded.

Strawberries.—Look them over with care. Weigh a pound of sugar to each pound of fruit. Put a layer of fruit on the bottom of the preserving kettle, then a layer of sugar, and so on till all is in the pan. Boil them about fifteen minutes. Put them in bottles, hot, and seal them. Then put them in a box, and fill it in with dry sand. The flavor of the fruit is preserved more perfectly, by simply packing the fruit and sugar in alternate layers, and sealing the jar, without cooking, but the preserves do not look so well.

Currants.—Strip them from the stems. Allow a pound of sugar to a pound of currants. Boil them together ten minutes. Take them from the syrup, and let the syrup boil twenty minutes, and pour it on the fruit. Put them in small jars or tumblers, and let them stand in the sun a few days.

To Preserve Currants to eat with Meat.—Strip them from the stem. Boil them an hour, and then to a pound of the fruit, add a pound of brown sugar. Boil all together fifteen or twenty minutes.

Currant Jelly.—Pick over the currants with care. Put them in a stone jar, and set it into a kettle of boiling water. Let it boil till the fruit is very soft. Strain it through a sieve. Then run the juice through a jelly-bag. Put a pound of sugar to a pint of juice, and boil it together five minutes. Set it in the sun a few days.

Cherries.—Take out the stones. To a pound of fruit, allow a pound of sugar. Put a layer of fruit on the bottom of the preserving kettle, then a layer of sugar, and continue thus till all are put in. Boil till clear. Put them in bottles, hot, and seal them. Keep them in dry sand.

Raspberry Jam—No. 1.—Allow a pound of sugar to a pound of fruit. Press them with a spoon in an earthen dish. Add the sugar, and boil all together fifteen minutes.

Raspberry Jam.—No. 2.—Allow a pound of sugar to a pound of fruit. Boil the fruit half an hour, or till the seeds are soft. Strain one quarter of the fruit, and throw away the seeds. Add the sugar, and boil the whole ten minutes. A little currant juice gives it a pleasant flavour, and when that is used, an equal quantity of sugar must be added.

Prepared Molasses for Fruit.—As economy is the order of the day, permit me, through the medium of your paper, to communicate to our ladies a receipt for preparing molasses for preserving fruit, &c., which renders it much better suited for that purpose than a syrup prepared from the best loaf sugar, as it is not likely to candy, nor if well prepared to ferment:—Take eight pounds molasses, bright New Orleans or Sugar House, eight pounds pure water, one pound coarsely powdered charcoal. Boil for twenty minutes, then strain through fine flannel, double—put it again in the kettle, with the white of an egg, and boil gently, till it forms a syrup of proper consistence, and strain again.

LONG VITALITY OF SEEDS.

So completely is the ground impregnated with seeds, that if earth is brought to the surface from the lowest depth at which it is found, some vegetable matter will spring from it. I have always considered this fact as one of the many surprising instances of the power and bounty of Almighty God, who has thus literally filled the earth with his goodness, by storing up a deposit of useful seeds in its depths, where they must have lain through a succession of ages, only requiring the energies of man to bring them into action. In boring for water lately, at a spot near Kingston-on-Thames, some earth was brought up from a depth of 360 feet; this earth was carefully covered over to prevent any other seeds being deposited upon it, and it was soon covered with vegetation. If quick lime be put upon land which from time immemorial has produced nothing but heather, the heather will be killed, and white clover will spring up in its place. A curious fact was communicated to me respecting some land which surrounds an old castle, formerly belonging to the Regent Murray, near Moffat. On removing the peat, which is about six or eight inches in thickness, a stratum of soil appears, which is supposed to have been a cultivated garden in the time of the regent, and from which a variety of flowers and plants spring, some of them little known even at this time in Scotland.--*Jesse's Gleanings of Natural History.*

THE STRAWBERRY.---A fruit so very useful and delightful as the strawberry deserves a better name, though the old one is now so identified with its beauty that it would be a pity to get rid of it. Nobody thinks of *straw* when uttering the word strawberry, but only of color, fragrance, and sweetness. The Italian name is Fragola, fragrant. The English one originated in the custom of putting straw between the fruit and the ground, to keep it dry and clean; or, perhaps, as Mr. Philips thinks, from a still older practice among children, of threading the wild berries upon straws of grass. He says that this is still a custom in parts of England where they abound, and that so many "straws of berries" are sold for a penny.

FORCE OF SAP.

Braddock, a British Physiologist, cut off the stem of a grape, five years old, and covered the wound with a piece of bladder, secured by cement and twine. The bladder, although at first drawn very close to the top of the shoot, soon began to stretch, and to raise a ball over the wound, feeling as hard as a cricket ball. In about 48 hours afterwards the force of the sap burst the bladder.

MULCHING GOOSEBERRIES.

The English gooseberry has always hitherto mildewed here: and I have been familiar with bushes of the best sorts for many years, without ever being able to gather any perfect fruit.

I have lately "mulched some bushes" which heretofore had borne this worthless fruit. I covered the surface of the ground under them a foot deep with wet half rotten straw, extending this mulching as far as the branches grew

Imagine my delight at finding the gooseberries so mulched, ripening off finely, the fruit twice as large as I have ever seen it before, and quite fair and free from mildew.—*Horticulturist.*

SETTING FENCE POSTS.—Mr. Benjamin Willard, of Lancashire, Mass., gives the following, which we copy from the last New England Farmer, as his method of setting fence posts:—"I have for some time been satisfied of the economy of setting posts for permanent fence in lime mortar. I have proved the plan and have given it my sanction, for *permanent* record in your paper.—Air-slaked or refuse lime (at ten cents per bushel) answers; and the cost except labour on it is not over one cent per post. We dig the holes with a spade, and have two semi-circular pieces of sheet iron to put down round the post, and after filling inside with mortar and outside with earth, draw up these pieces, and the work is done for many years. It dries hard as stone, and remains in statu quo. I set the *top end* down."

VALUABLE RECIPE.—To prevent the borer from injuring apple trees. The borer lays its eggs just within the bark, a few inches from the ground, in June. Two pounds of potash to one bucket of water—wash the tree in June, and the liquid destroys the eggs, and will prevent the recurrence of the evil the next year. This is the common practice of the orchardists in Massachusetts, and is successful.—*Portsmouth Journal.*

RHUBARB.

The use of Rhubarb Stalks as an article of food is yearly on the increase; and, we have no doubt that, at no distant date, it will be an important article in the poor man's bill of fare. We have for many years past endeavoured to get those who had small gardens to grow a root of the Victoria Rhubarb in a corner of their ground, and several grew it, only for the purpose of obtaining a prize for the best grown stalks; they are now beginning to try the cooking of it, and like it very well; but, cheap as the sugar is, they grudge the sugar that is required to sweeten it to their taste; but many are not aware that by using a small quantity of what is called baking soda—carbonate of soda—one half the quantity of sugar will suffice. [But we eat Rhubarb, not only on account of its agreeable *taste* of the vegetabie acids which it contains, but also on account of the favourable effects of those acids on the animal economy when taken into the system as a portion of the food: it may be doubted whether we can accomplish the same objects by eating salts (oxalate and malate) of soda.—*Ag. Ed.*] When the soda is introduced after the rhubarb is boiled, a strong effervesence takes place, and the sourness of the rhubarb is greatly destroyed. Those in towns who buy it by the pound, often destroy a third of their purchase in the way in which they remove the skin from the stalk; it has now been ascertained by good judges, that there is no need whatever in removing the skin at all, when the stalks are in a proper state for

using, but just to clean them well and cut them up for use. Those who can afford it, may use blanching pots to put over their plants; it is thought by many that both the appearance and flowers are improved by means of them, and that a great saving in the quantity of sugar necessary to render them agreeable to the palate is obtained, as the leaf stalks when bleached are less harsh than when growing under the influence of light in open situations. We have grown rhubarb in various kinds of soils, but we find it to do best in rich light soil where the roots have liberty to grow and penetrate to a considerable depth. Rich liquid manure suits it well, and if much of the stagnant water that is allowed to accumulate near human dwellings, was to find its way to the rhuberb plantation, the owners would have sufficient for their own use, and a considerable quantity to sell to those who have no opportunity of growing it.—*Scotch Farmer for June.*

Planting Chestnuts.—At a late farmers' meeting in New York, Mr. Rice, speaking of planting chestnut timber, remarked, that he ploughed up a tract of unproductive hill-side, several years ago, and planted it with chestnuts, in rows four feet apart every way. The first sprouts coming up rather crooked and scrubby, he went over the field and cut them down close to the ground, which caused new shoots to spring up straight and vigorous. The trees are very thrifty, completely shade the ground, and grow more and more rapidly as the soil becomes strengthened by the annual deposit of leaves. So well satisfied is he with the experiment, that he is now placing other worthless lands in a similar course of improvement.

ANSWERS TO INQUIRIES.

Are Gooseberries and Currants best grown as bushes or with single stems?

We prefer the former, on the whole, as less trouble, and being perhaps rather hardier. For the amateur, the latter mode is preferable, as affording neater, more manageable bushes—much better adapted to thorough pruning and cultivation. In pruning, a judicious trimming out of both old and new wood, is all that is necessary. The Gooseberry requires the most trimming.

How to raise tree Currants, or bushes that will not sprout from the roots:—

This is done by cutting out all the eyes or buds from that portion of the cuttings or layers, that is below the surface of the ground, and up as high above ground as you wish to have the bodies.—*Wis. Far.*

DEFINITIONS,

FROM A LATE EDITION OF THE FARMER'S VOCABULARY.

Profitable Stock—A man's dog caught among the *last half* of his neighbour's sheep!

Labour Saving Machine.—A pair of legs which, when put in motion, are wont to take their owner to that ubiquiteus resting-place a Tavern.

Cheating his Creditors.—A poor man running away from a family of six lazy, fashionable daughters.

Chess.—A vile weed of common occurence, but very uncertain origin—some supposing it natural and others miraculous. The one party claim, that according to the heathen notion of transmutation, (we beg pardon, transmigration), it comes from the soul of the wheat after the death of the body; while the other most dementedly insist that it comes from the seed!!

Poverty.—A condition hitherto supposed favourable to health—but found of late to predispose strength to fatal attacks of the "yellow fever."

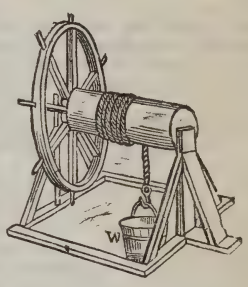
General Science and Miscellany.

NATURAL PHILOSOPHY.

No VI.

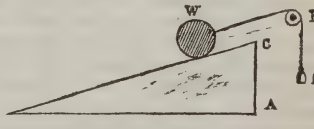
THE WHEEL AND AXLE.

The third mechanical power is the *wheel and axle*. Let us suppose the weight w to be a bucket of water in a well, which is to be raised by winding the rope, to which it is attached, round the axle; and if this be done without a wheel to turn the axle, no mechanical assistance is received. The axle without a wheel is as impotent as a single fixed pulley, or lever, whose fulcrum is in the centre; but add the wheel to the axle, and you will immediately find the bucket is raised with much less difficulty. The axle acts the part of the shorter arm of the lever, the wheel that of the longer arm. The velocity of the circumference of the wheel is as much greater than that of the axle, as it is further from the centre of motion; for the wheel describes a large circle in the same space of time that the axle describes a small one, therefore the power is increased in the same proportion as the circumference of the wheel is greater than that of the axle. If the velocity of the wheel were twelve times greater than that of the axle, a power nearly twelve times less than the weight of the bucket would be able to raise it.



THE INCLINED PLANE.

The fourth mechanical power is the *inclined plane*. This is nothing more that a slope, or declevity, freqently used to facilitate the drawing up of weights. It is not difficult to understand, that a weight may with much greater ease be drawn up a slope than it can be raised the same height perpen icularly. But in this, as

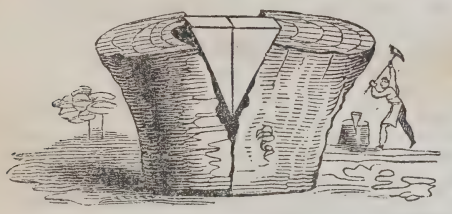


well as the other mechanical powers, the facility is purchased by a loss of time; for the weight, instead of moving directly from A to C, must move from B to C, and as the height of the plane is to its length, so is the power to the weight which it is intended to raise. Thus, if a pully be fixed at F, so that the string from F to W may be parallel to B C, and a string fixed to the weight W were connected with another weight P: then if P bear the same proportion to W that the line A C does to the line B C, the two weights will balance each other, a

considerable portion of the weight w being supported by the plane B C, and only the residue by the power P.

THE WEDGE.

The *wedge*, which is the next mechanical power, is composed of two inclined planes. Woodcutters sometimes use it to cleave wood. The resistance consists in the coheeive attraction of the wood, or any other



body which the wedge is employed to separate; and the advantage gained by this power is in the proportion of half its width to its length. The wedge, however, acts principally by being struck, and not by mere pressure; the proportion stated, is that which expresses its power when acting by pressure only.

All cutting instruments are constructed upon the principle of the inclined plane, or the wedge. Those that have one edge sloped, like the chisel, may be referred to the inclined plane; whilst the axe, the hatchet, and the knife, (when used to chop or split asunder,) acts on the principle of the wedge. But a knife cuts best when drawn across the substance it is to divide, as it is used in cutting meat; for the edge of a knife is really a very fine saw, and therefore acts best when used like that instrument.

THE SOLAR SYSTEM.

Sir John Herschel well observes, that it is difficult to convey to one who has not long exercised his thoughts on the subject any adequate impression of the relative distances and magnitudes of those planets which are comprised within our own system. How much more difficult is the conception of the starry heavens—each star a sun, the centre of a system, it may be more extensive and more glorious than our own? We cannot impart to others correct notions on the subject by drawing circles on paper, or "by those very childish toys called orreries." Some general impression may be conveyed by placing a globe two feet in diameter in the centre of a plain or bowling green.—With the sun for a centre, a circle 164 feet in diameter will represent the orbit of Mercury, the comparative size of which plannet may be represented by a grain of mustard seed. Venus might be represented by a pea, moving in a circle the diameter of which would be 284 feet; the Earth also a pea, but on acircle of 430 feet diameter; Mars a large pin's head, and the diameter of its circle 654 feet; Juno, Ceres, Vesta, and Pallas, grains of sand, moving in circles from 1,000 feet to 1,200 feet in diameter; Jupiter a moderate sized orange, in a circle half a mile across; Saturn a small orange, on a circle four-fifths of a mile in diameter; Uranus a large cherry, upon a circle more than a mile and a half in diameter; and Neptune a good sized plum, on a circle about two miles and a half diameter. When we have attained sufficient knowledge of the comparative magnitudes and distances of the heavenly bodies, it becomes matter of astonishment to find how simple, yet how powerful and effectual, are the laws by which they are all governed, so as to keep each one of them them in its predestined orbit, moving for ever at the same rate in the same constant round. It is matter of astonishment that a globe two feet in diameter should, by the simple law of attraction, acting in proportion to their several masses, keep so many other globes, varying in size from that of an orange down to a grain of sand, each circling the central globe without confusion, and some of them at the great distance of two miles and a half from the centre of attraction; but it becomes a matter of far greater astonishment to find as we advance further in our inquiries, that this very sun itself, with all its planetary orbs, is governed by a higher law of the same description, if not by the very same law; for not only is it found, on a more minute investigation, that the sun revolves on its axis, as the earth and planets do, but that the sun does not occupy the precise centre of our system, nor do the planets move in circular orbits, for these orbits are ellipses, of which the sun occupies one or other of the foci, the sun itself moving in an orbit of its own as well as turning upon its axis. Nay, more, it seems all but certain that our whole system has a proper motion as a whole among the fixed stars, tending towards a point in the constellation Hercules; and that the fixed stars themselves, which are only other suns, have all proper motions, if their immense distances and the want of some really fixed object to measure their motions did not preclude our obtaining sufficient data to enable us confidently to affirm it. We may, indeed, at length rest assured that some parallax has been detected in the nearest fixed stars, but so small as not to amount to a second. This parallax would give the enormous distance of twenty billions of miles from the earth as that of the nearest fixed star; and, consequently, make each of those stars to be at the same immense distance from its nearest neighbour. And when it is considered that the milky way is so thickly paved with stars that Sir W. Herschel was led to conclude that fifty thousand had passed under his review, in a zone two degrees in breadth, during a single hour's observation, the mind of man fails in attempting to grasp such distances as would result from summing up the number of stars in the whole range of observation during 24 hours, each separated from each by at least 20,000,000,000,000 of miles. Some parts of the heavens are even more thickly clustered with stars—as many of the nebulæ, especially a vivid oval mass in Sagittarius, about six degrees in length, four degrees in breadth, so excessively rich in stars that a very moderate calculation makes their number to exceed one hundred thousand. Some of the nebulæ are even denser than this, appearing like globular spaces filled full of stars. "It would be a vain

task to attempt to count the stars in one of these *globular clusters.* They are not to be reckoned by hundreds; and, on a rough calculation, grounded on the apparent intervals between them at the borders and the angular diameter of the whole group, it would appear that many clusters of this description must contain at least five thousand stars, compacted and wedged together in a round space, whose angular diameter does not exceed eight or ten minutes—that is to say, in an area not more than a 10th part of that covered by the moon."—*Quarterly Review.*

A Cheap Cistern.—Every house-keeper knows the superiority of rain water for washing, &c., yet how few are prepared to realize this advantage, for want of a cistern to receive it. I will give a method for constructing a cistern on a very cheap plan, which every person who wishes can have, and which will do until they can make a better one:—Take any large vessel or cask, it need not be water tight, (a sugar hogshead will do,) knock one end out—then dig a hole in the ground where you want it to stand, about a foot larger in diameter than your vessel, and six inches deeper; then make some clay mortar, with which cover the bottom to the depth of six inches; then set in the vessel and fill up the space around it with mortar well crammed in, and your cistern is finished.—*Ohio Cultivator.*

Excellent Spanish Custom.—A recent writer says: The domestic manners of the *Malanuenas* are well illustrated, by their customs in regard to sickness and death. When a case is pronounced *de cuidada* (of seriousness) the usual visitors of the house are expected to call, regularly, in person. To avoid the inconvenience which might be caused by this, the door of the front court is left open, and upon a table within, there is placed a bulletin of the patient's condition, with information as to whether the family are willing or not to see company. There are writing materials at hand, and each visitor leaves his name, departing, as he entered, without the use of bell or knocker.

To Correct Sourness in Milk, Cream, and Bread.—It is not generally known that the sourness of milk and cream may be immediately corrected by the addition of a small quantity of the common carbonate of magnesia in powder. Half a teaspoonful (about equal to four grains) may be added to a pint of milk and cream, if only slightly sour; a larger quantity in proportion to the degree of sourness. From two to three grains may be added to every pound of flour to prevent sourness in bread—so injurious to health. Carbonate of soda is sometimes employed for the same purpose, but it communicates a very unpleasant flavour to the bread; and, in the case of milk or cream, is worse than the disease.

Receipt for Washing.—To every twenty gallons of warm water, add one bar of soap, seven tablespoonfuls of spirits of turpentine, and one of sal ammonia, and let the whole stand for one night. In the morning, put in the fine clothes, and let them soak one hour, or, if very dirty, one and a half hours; then take out, wring, and rinse well in clean water; wring and rinse again in *blue water*—then dry. The coarse linen may then be put in the same water, and undergo the same process. *No rubbing is necessary*, and the clothes will be perfectly clean and sweet.

New Jersey Marls.—It is well known that certain sections of New Jersey have been greatly improved in regard to the productiveness of the soil, by the application of marl. In Monmouth county, according to Professor Mapes, in the *Working Farmer*, "lands which ten years ago were worth but ten dollars per acre, are now producing large crops, simply by coating them with a few bushels of marl, taken from within a few feet of the surface." This marl we understand to be what is called *green sand.* Professor M. states that some of it contains 13 per cent of potash, and that the quantity required to fertilize an acre, does not exceed one hundred bushels. Some of the marls, however, are said to contain an excess of sulphate of iron, and when they are applied in large quantities, injure vegetation. Professor M. observes, "that the continued use of marl, while it supplies many of the inorganic constituents of plants, must eventually cause the disappearance from the soil of all its inorganic matter, and hence the necessity of its renewal from time to time by the addition of decomposed peat, turf, river mud, and other inorganic matters."

Explosion of Air-tight Stoves.—Prof. Horsford, in a paper lately read before the "American Academy of Arts and Sciences," thus explained the phenomenon of the explosion of the so-called air-tight stoves. It is proper to remark that these accidents are latterly of rare occurrence, and with the self-regulating valve, which is now attached to the best of these stoves, it is believed such accidents would never happen. After the wood has been fired, and the supply of air for some time shut off, on reopening the draft, and sometimes without, occasional explosions of great violence have occurred, attended with the blowing out of the stove door, and in some instances producing still greater injury to the stove. The probable explanation is this. After firing the wood and shutting off the draft, destructive distillation commences. Inflammable gases issue from the wood, which, mingling with air derived from the pipe, or remaining still unconsumed, furnish an explosive mixture, which the first jet of flame, or perhaps the incandescent coal, causes to explode.

Animalcules on Human Teeth—Dr. H. J. Bowditch, of Cambridge, Mass., states as the result of many microscopic examinations of the accumulations on the teeth of healthy persons, that of forty-nine individuals, most of whom were very particular in the care of their teeth, animal and vegetable products were found in every instance except two. In those cases the brush was used three times a day, and a thread was passed through the teeth daily. Windsor soap was also used by one of those two persons, with the brush. Dr. Bowditch tried the effect of various substances, in destroying the animalcules, and especially tobacco, by which they seemed to be in no way incommoded. Soap-suds and chlorine toothwash invariably destroyed them.

Red Cedar Posts.—All kinds of Cedar are known to be very durable, but the heart of red cedar is perhaps preferable on this account to any other kind, and those parts of the tree which are most knotty, will probably last longest. E. Bourne, in the *Massachusetts Ploughman*, states that on examining some red cedar posts set by his father forty-eight years since, he found those which were taken from the butt-end of the tree a little decayed on the outside; but those from the second and third cuts of the tree, were perfectly sound.

To make the best Beef Hams.—Take the hind part of a good fat animal, and make a cut all the way down into and the whole length of the bone; then cut out the bone, leaving the meat with one long cut in its centre—nearly resembling a split cylinder. Now lay it down in clean brine of good salt, that has been boiled and skimmed, and into which there has been dissolved a little sugar. Let it remain in this brine for about ten days at least; do not let it get too salt. Then lift it out and hang it on a hook to drip for about three days. Take it down when all the brine has dripped out of it, and lay it upon a table. Have ready a small quantity of fine salt, mixed with considerable pepper and ground cloves. Rub the meat with the hand, both inside and out, with this mixture, and then have ready a ball of stout hempen cord or twine. Then roll the meat firmly round, making it into a conical shape. After this, take the cord and commence at the thickest part of the meat, to roll it round, drawing firmly every coil, having each coil wrapped and drawn firmly round at one-fourth of an inch apart, up to the top or small end. The cord must then be laid down on both sides opposite, in such a way that each lower coil of cord may be cut without loosing the coil above it. This roll of beef is then the *ne plus ultra* of beef hams. It has but to be hung up for two or three days, and a slice of it (commencing at the lower part to cut) either boiled or fried, makes a dish fit to enchant an epicure. To cut it, the roll, should be laid on a table, and with a large sharp knife, it should be cut in thin slices; and when enough for a meal is cut off, it should be hung up again. Hams should never be hung in a warm situation, but in a cool, airy place. The fat and lean in this kind of ham is beautifully mixed in every slice. The seasonings assimilate themselves with the meat, and have a peculiar and agreeable flavour. Let those who make their own beef hams, try this method, and if ever they forget or neglect to do it afterwards, although it is a little more troublesome than smoking the beef, we are no judges of human nature.

Explosion in Coal Mines.—It is calculated that since 1800, more than 20,000 human beings have been killed by explosions in the coal mines in Great Britain. In 1847 and 1848 upwards of 700.

Cheap Roof and a Tight One.—If a shingle roof is covered with cotton cloth, and then painted, and sand laid upon the top of the paint, and all suffered to dry, a roof will be made thereby to last twice as long as without the said covering. Cheap boards will answer as well as shingles, and the cloth will keep the roof perfectly tight from leaking.

MANAGEMENT OF DOMESTIC AFFAIRS.

The prosperity, happiness, and reputation of a family depend, in a very great measure, on the judicious and prudential management of the household department. With economy and skill, a family may be made comfortable, happy, and respectable, with one half the expense on the part of the husband that is required with the extravagance and mismangement that prevail in some families. This will make all the difference between prosperity and the accumulation of a competency, and a failure and want.

This shows the importance of woman's influence; and she has not this influence merely on the comfort of the family, and its prosperity in the acquirement and saving of property, so essential to its well being, but her influence is equally great in training the infant and youthful mind to virtue and learning, and rendering the subjects under her care an ornament and blessing to the community, and a credit to themselves and their parents.

Strict economy and skilful management, while they contribute to the acquirement, preparation, and arrangement of those possessions that are essential to independence and happiness, exercise a wholesome discipline over both body and mind, laying a foundation for health, strength, and those principles which insure present comfort and satisfaction and a well founded-hope for future prosperity.

No woman should think of taking charge of a family without being well versed in her profession so as to act upon the best principles and practice, in a skilful manner. Science and skill are as important in the kitchen as on the farm and the one is no more disreputable, difficult, or unpleasant to a woman, than the other is to a man.

Every person should endeavour to excel in his or her avocation, and consider nothing, however minute, as unworthy of attention.

No person, who is not skilled in domestic affairs, should ever have a family subjected to her mismanagement and neglect. Labor is the necessary lot of all animal beings throughout creation, and it is essential to health and happiness. Then how important that it be directed by intelligence and skill which are absolutely requisite to success.—*New England Farmer.*

THE POWER AND VALUE OF STEAM.

The modern economy of doing by steam what was formerly done by muscle, brute or human, is incalculably great, and most promotive of the progress of the race, because, by saving human time, and land on which to raise animal provender, it allows a vast accession to the number of human beings, as well as multiplies and cheapens every kind of property, comfort, and luxury. The extent of this saving, say of horse flesh, and, of course, food and capital, may be inferred from the following:

"A pint of water evaporated by two ounces of coal, swells into two hundred and sixteen gallons of steam, with a mechanical force sufficient to raise a weight of thirty-seven tons a foot high. By allowing it to expand, by virtue of its elasticity, a further mechanical force may be attained, at least equal in amount to the former.

Five pints of water evaporated by a pound of coke in a locomotive engine, will exert a mechanical power sufficient to draw two tons weight on a railroad a distance of one mile in two minutes. Four horses in a stage-coach, on a common road, will draw the same weight the same distance in about eight minutes. Four tons of coke, worth twenty-five dollars, will evaporate water enough to carry, on a railway, a train of coaches weighing about eighty tons, and transporting two hundred and forty passengers with their luggage from Liverpool to Birmingham, and back again, a total distance of 190 miles, in four hours and a quarter each way. To transport the same number of passengers daily by stage-coaches on a common road between the same places, would require 20 coaches, and an establishment of 3800 horses, with which the journey in each direction would be performed in about twelve hours. A more striking illustration of the incalculable saving in time and money produced by steam, cannot be given."—*Dr. Lardner's Lectures.*

The Charcoal Road—Something New.—The following statement from Joshua Hathaway, the Secretary of the Company, gives some interesting details about the charcoal road between Poplar creek and Pewaukee: The Madison, Watertown, and Milwaukee Plank Road Company have contracted for the construction of four miles of charcoal road in place of planking. The price for construction is $1200 per mile, exclusive of sluice ways and deep grading, which is to be paid for in addition. The mode of construction is as follows: The wood taken from the track is cut into the longest possible cuts, being straight; the stumps reduced to the surface; the wood being piled lengthwise, 8 feet wide, 4 feet high, with slopes of 45 degrees, is covered with straw and earth from the ditches, is then charred; a quarter of a mile of which can be charred and quenched in 10 days. The earth cover is then raked open to the width of 16 feet, 2 feet thick in the centre and 1 foot in the margin; the burned earth at the sides is then to be raked into the shape, and the weather and use will complete the work. The company are confident that this charred portion will prove the best and most economical and durable portion of their road.—*Wisconsin Farmer.*

Patent Hoops.—A machine has lately been invented for making hoops, which bids fair to do away the necessity of growing hoop poles hereafter. Any tough, straight-grained timber will answer the purpose. It is first sawed into square strips, the width desired for the hoop; these strips are next turned round, like a hoe handle, and slit through the centre, Each stick thus makes two half-round hoops. They are then steamed and bent. Casks hooped with them, present an extra-neat appearance. The whole work is done by machinery. Just previous to setting them, it is necessary to wet them in cold water. A specimen of these hoops was exhibited at the late State Agricultural Show at Syracuse.

Vinegar from Beets.—It is stated that the juice of one bushel of sugar beets, will make from five to six gallons of vinegar, by washing, grating, expressing, and exposing two weeks to the air in the barrel, with a gauze-covered bung hole.

To Prepare Rennet.—Take a gallon of blood-warm water to each rennet; soak, after stirring, for 24 hours; strain the liquor and let it settle, saturate with salt, and skim off the scum.

Lemon Pies.—In this year of scarcity of fruit, it may be desirable to know that a good pie can be made simply out of lemons and molasses. Press out the juice of a lemon into two teacups full of molasses, grate in the dried peel of another, cover a plate with a layer of crust, spread over some of the mixture, lay on a thin crust, spread another layer of the mixture, and over that lay a top crust; bake thoroughly, and you will have an excellent and wholesome pie. One lemon will make two pies.

Beef-Tea.—Cut a pound of solid beef into very small slices, which put into a stew-pan with a small pat of butter, a clove, two button onions, and a salt-spoonful of salt; stir the meat round over the fire for a few minutes, until it produces a thin gravy; then add a quart of water, and let it simmer at the corner of the fire for a quarter of an hour, skimming off every particle of fat. When done, pass it through a sieve, which is much better than a cloth, as it does not injure the flavour. The same, if wanted plain, is done by merely omitting the vegetables, salt, and cloves; the butter cannot be objectionable, as it is taken out in skimming. Pearl barley, vermicelli, rice, &c., may be served in it, if required.—*Modern Housewife.*

To keep Silk.—Silk articles should not be kept folded in white paper, as the chloride of lime used in bleaching the paper will probably impair the colour of the silk. Brown or blue paper is better; the yellowish smooth Indian paper is the best of all. Silk intended for dress should not be kept long in the house before it is made up, as lying in the folds will have a tendency to impair its durability by causing it to cut or split, particularly if the silk has been thickened by gum.

Thread lace veils are very easily cut; satin and velvet being soft are not easily cut, but dresses of velvet should not be laid by with any weight above them. If the nap of thin velvet is laid down, it is not possible to raise it up again. Hard silk should never be wrinkled, because the thread is easily broken in the crease, and it never can be rectified. The way to take wrinkles out of silk scarfs or hankerchiefs, is to moisten the surface evenly with a sponge and some weak glue, and then pin the silk with toilet pins around the selvages on a mattress or feather bed, taking pains to draw out the silk as tight as possible. When dry, the wrinkles will have disappeared. The reason of this is obvious to every person. It is a nice job to dress light coloured silk, and few should try it. Some silk articles may be moistened with weak glue or gum water, and the wrinkles ironed out by a hot flat-iron on the wrong side.—*Sci. Am.*

Doing Good.—How often do we sigh for opportunities for doing good, whilst we neglect the opening of Providence in little things which would lead to the accomplishment of most important usefulness! Dr. Johnson used to say, "He who waits to do a great deal of good at once, will never do any." Good is done by degrees. However small in proportion to benefits which follow individual attempts to do good, a great deal may be accomplished by perseverance, even in the midst of discouragements and disappointments.—*Channing.*

To Keep Moths from Woolen Clothing, Carpets, and Furs.—Place the articles in linen sheets, or bags, sewed closely together, first beating them, so as to clear of all moths and eggs. Camphor or tobacco scattered through light trunks, where they are packed is also a protection.

Editor's Notices, &c.

WORLD'S INDUSTRIAL EXHIBITION.—Mr. Treadwell's letter, in another part of the present number, will, we trust, receive proper attention from the press, and those having the management of the matter, to which it refers. We understand that a Parliamentary Committee has recommended a liberal Government grant towards assisting in giving premiums and defraying the expenses of such articles as may be sent from Canada. The Toronto Mechanics' Institute will open an Exhibition, with special reference to this object, immediately after the Agricultural Fair at Niagara, during the last week in September, which we have no doubt will prove highly attractive. It is further proposed, that a grand and final Exhibition shall take place in Montreal, for the United Province, sometime in October, when all such articles as are suitable for the London Exhibition, will be determined on, and immediately shipped for their ultimate destination.

PRIZE CHEESE FOR THE LONDON EXHIBITION.—Our Correspondent from Alderson is informed, that as no specific weight has been determined, for the cheese to be exhibited at the approaching Niagara Show, that point must be left to the judgement and resources of Exhibitors.

DEATH OF JOHN WETENHALL, ESQ.

Since our last issue, this lamented gentleman has been relieved from his late distressing affliction, and his spirit is now, we trust, in that happy land, where pain and disappointment cannot enter. Mr. Wetenhall was descended from a highly respectable family in England; he had been liberally educated, and in the various transactions of public life, enjoyed the confidence and esteem of all who knew him. He felt great interest in the advancement of the country of his adoption, and was well known and appreciated, as an enterprising farmer, particularly for his valuable and improved stock. He was President of the Agricultural Association of Upper Canada for the current year, and previous to his lamented affliction took a lively interest in the welfare of that important Society. He has left a widow and young family, with a wide circle of attached friends to deplore his loss.

PROVINCIAL AGRICULTURAL ASSOCIATION.

The Local Committee, at Niagara, are actively engaged in making the necessary preparations for this great Exhibition, which promises to exceed any thing previously seen in Canada. All the arrangements, therefore, are projected on a larger scale than heretofore. The contract for fencing, buildings, &c., is already taken. About 14 acres of the extensive common close to the Town and steamboat landing, will be enclosed with a fence 10 feet high, in an octagonal form, each side being 350 feet long. Floral Hall 120 feet long, and 44 feet wide. Mechanics' Hall 100 feet long and 24 feet wide. Another hall of the same dimensions for agricultural productions, refreshment booths, &c., with suitable offices for Directors, Treasurer and Secretary. There will be upwards of 100 pens, and other conveniencies, for cattle. Articles and visitors from the United States, it is expected, will be very large. The Governor-General, with the Countess of Elgin and suite, have been invited, and His Excellency has signified his acceptance. A public dinner, on a large scale, will be got up, independent of the funds of the Association. The premium list contains prizes in money, to the amount of nearly £1,200; and we understand that the Directors intend encouraging articles of merit, not included in that list to the full extent of their ability. We trust that the Canadian public will evince an enlightened patriotism, by a prompt and liberal support of this truly national and most useful institution. As every practicable arrangement will be made by the Committee, for the safe and easy transit of visitors and articles for Exhibition at reduced rates, and likewise for the accommodation of the public in Niagara, and the various towns and villages of its interesting and beautiful neighborhood, we shall expect to see, when the day arrives, thousands after thousands thronging to the encouraging and instructive exhibition of the skill and industry of Canada. The Secretary requests that the County Societies will transmit to him, the names of such gentlemen, as they may appoint as Delegates, and Judges at their earliest convenience, in order that arrangements may be made in proper time. The reader's attention is requested to Mr. Marks' address to be found on another page; and it is hoped that the Provincial Press will insert this communication, and lend its powerful aid in rendering the forthcoming exhibition, a benefit and an honour to the country.

MORTON'S CYCLOPEDIA OF AGRICULTURE.

We have examined with much care, the first number of this truly original and valuable publication; which for convenience of reference, correctness and fulness of detail, with the superior style of printing and illustration, with which it is "got up," place it indisputably at the head of the important class of publications to which it belongs. We have no room in our present number but barely to announce the work; but we shall draw the attention of our readers to the more interesting and useful features of its various parts as hey successively appear. Suffice it to say, for the present, that upwards of fifty of the most eminent farmers and scientific men of Great Britain—with several of whom we have the honour of a personal acquaintance—have been for some years engaged in the preparation of this Cyclopedia; each contributor being practically conversant with, and distinguished in, the particular department allotted to his special care; a feature which alone gives a value and authority to this publication, which is not possessed by any other with which we are acquainted. It is published by Blackie & Son, of Glasgow, and will be completed in about 24 parts, Super Royal 8 vo, "with upwards of one thousand illustrations on Wood and Steel." Mr. MACLEAR, Bookseller, of this City, being the Colonial Agent for Messrs. Blackie's publications, can supply the work in parts as they are published, through his Travelling Agents in all the settled districts of Upper Canada, at the Glasgow or London price, 3s. 1 1-2d. Currency, each part. To such as desire an original and trust-worthy treatise on every subject, connected with the Practice or Science of Agriculture, brought down to the latest moment, we can conscientiously recommend, in terms unqualified, MR. MORTON'S CYCLOPEDIA.

APPEAL OF THE PROVINCIAL ASSOCIATION.

We beg the attention of our readers to Mr. Marks' communication in another page, and request the newspaper press to copy.

MARKETS, &c.

At present very little is doing in our market. Prices are nearly stationary, the farmers being busy in the hay field, and will shortly commence the cutting of grain. The wheat crop throughout Upper Canada may be said to be promising, and we have heard of but little rust; accounts from the States are generally favorable. Spring grain and hay, except in particular localities, will be light, but the late rains have considerably improved the appearance of these crops. From England we learn that the weather continued favorable and the crops promising; prices were consequently again looking downwards.

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, } EDITOR,
WILLIAM McDOUGALL, } ASSISTANT EDITOR.

VOL. III. TORONTO, AUGUST, 1851. No. 8.

The Canadian Agriculturist.

Published Monthly, at Toronto, C. W.

TERMS:

One Dollar a-Year in Advance.

Twelve Copies, for one year . . . . . 3s. 9d.

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HINTS RELATING TO THE PROVINCIAL EXHIBITION.

To the Editor of the Canadian Agriculturist.

Dear Sir,

As we have changed the days for holding the Provincial Agricultural Exhibition, in consequence of the New-Yorkers taking up our regular time with their show, let me hope that you will exert your means, through the *Agriculturist*, to make our Farmers acquainted with the fact, otherwise it may lead to much confusion.

By reference to our Premium List, which is now printed and being circulated, the Farmers and Mechanics will find that we have very much increased the amount, and number of prizes.

While on the subject of the fair allow me to offer a few suggestions, which, I think, if carried out, would be of service to all parties.

I would recommend that farmers exhibiting grain, roots, and stock, should send all those articles with the view of disposing of them, after judgement had been pronounced; and that all parties should go with the determination of bringing something new or improved home with them. For instance, I have superior spring wheat, and another may have barley, oats, or pease, or something else better than my neighbourhood can produce, well, we exchange, and one or other pays the difference. He carries into his county what will improve it, and so do I, and in the same

way, stock, implements, and small seeds could be exchanged; the principle might indeed be carried out with advantage to the most insignificant article exhibited. I, for one, have never returned from the Provincial fair without buying something, (and I have attended all) but I must in justice say that I have once or twice fallen in with wooden nutmegs for my money; but with common caution such things may be avoided. And where can a farmer procure better seed wheat than that exhibited for the *Canada Company's* Prize? A friend of mine bought up three lots for seed, at Niagara, last year, and went on purpose; but this year it will be too late. I will, however, buy a spring or yearling Durham Bull, and a Leicester ram lamb; and I have no doubt that many hundreds will go with similar intentions. So go prepared to supply what your neighbours require and fetch home what you require yourself.

My next neighbour last fall bought a sow pig at 50s. and it cost him 25s. to get it home, and I thought it dear when I saw it. Since then I bought one of her pigs at 40s. and seven more are sold at the same price. She had twelve for the first time, but four she smothered. The pigs amount to sixteen pounds and the sow could not be bought for less money!

Yours &c.,

R. L. Denison.

Denison Terrace,
July, 7 1851.

IMPROVED BREEDS OF CATTLE.

Woodstock, July 21st, 1851.

Sir,

Any one reading Mr. Parson's spirited and able letter, in your last number, must have been pleased at the skill he shows in defending his favourite breed of cattle; but, as he very justly remarks, a series of experiments on the virtues of the different breeds can alone determine the question. Would it not be well if those who raise the different breeds would favour the public through the medium of your paper, with short memoranda stating the *nature of farms and soils*, average quantity and quality of milk, &c. I am afraid we could not obtain the average weight of carcase, and when ripe for the butcher, for they are worth more as yet for breeding than for killing. In my opinion Mr. Parsons and Mr. Tye are both right. You may call it a bull, but as it is said that when two parties fall out they are both in the wrong; surely they must be both partially right. In England, the idea of one breed of cattle being good for every situation has long been cast aside. It was but to day I saw it derided in the *Agricultural Gazette*. Does not the same thing hold good here? On rich level farms near towns where butcher's meat in quantities, and yet of fair quality is required, the *Durhams* are undoubtedly the best; but on rough hilly farms the heavy Durham would not be able to pick up a very good living, whilst the light and active *Devon* would thrive and fatten. Such a farm as my own I would instance, which I took possession of at the beginning of last year, small, rough and hilly, most thoroughly worn out by the last occupant, having about five acres of Indian grass, and the rest bare stubble, bearing nothing but burrs, thistles and raspberries; soil light, in fact, bought merely on account of its presenting a good site for a house. Upon such a farm a heavy Durham would starve, but two or three Devons (purchased from Mr. Tye,) live, grow fat, and milk well. As an experiment I made from one gallon of milk, one-half a pound of butter, the afternoon's milking, two months after calving, which I think shows pretty good quality of milk, and my Devon cows present a wonderful and pleasing superiority in flesh over a native cow that runs with them. Again, if you give a greater price for your Durham cows, you run the greater risk, and a Devon cow at $50 is more likely to realize her value if thrown out of breeding by an accident that a Durham at $150, not to mention the fact of the latter being more subject to that very annoying disease. It would, however, be of immense advantage to a man who wishes to invest in improved stock, to be able to choose the proper subjects for purchase in his own particular case, which the plan I have proposed would, I think, assist him in. I am afraid my letter is a long one, but the great interest I take in farming, and especially in live stock must be my excuse.

And remain Sir,

Yours faithfully,

A Hamilton Farmer.

P. S. Is it not stated in *Youatt's* work on British Cattle, that Mr. Bakewell's improved long horns were *inferior* to the stock they sprang from as milkers. I have not the book at hand just now to refer to, but such is my impression.

A. H. F.

	West Needham, Mass, ...	50 00
6,	One pair of do Captain Spencer, . . .	20 00
7,	One Pair of Pigs, Thomas Hancock, Burlington N. J., ...	20 00
8,	do Henry Parsons Canada West, . .	30 00
9,	do Aaron Clements Philadelphia, . .	27 50
10,	Single Boar Pig. Lewis Levingston, Rhinbeck. Dutchess co.	17 00
11,	do Gen. Cadwallader, Philadelphia, ...	17 00
12,	do J. B. Wilson, Wisconsin,	17 00
13,	do Thomas Hancock, Burlington, N. J., ...	16 00
14,	do Lincoln Brooks, Providence, R. I., ...	16 00

All the above Pigs were dropped from the 7th to the 10th of April, last.

16,	One Sow in pig 9 months old, G. G. Hubbard, West Needham, Mass., ...	30 00

FLAX MACHINERY—VALUE OF MARL, &c.

To the Editor of the Canadian Agriculturist.

Sir,

I see by the Old Country papers, that Mons. Claussen has advertised to license his patent for preparing flax. Forty years since, Mr. Lee of Enfield, near London, took out a patent for preparing flax in its dry state, as pulled. At that time I was engaged with a party who were promised a license by Mr. Lee, and they in consequence sowed many acres to flax. I left that country and heard no more of the patent; but subsequently I saw quoted Mr. Lee's recommendation of sowing two bushels of salt per acre with flax, in the old *Farmer's Journal;* and I think also by Sir John Sinclair, in the *Code of Agriculture*. The sample of flax that I saw which had been prepared according to Mr. Lee's process was of a beautiful white silky texture, and believe that Mr. L. failed to enrich himself, solely through a deficiency of tact in bringing his patent into notice. I understand that the machinery and bleaching were both unexpensive. This patent is now public property; enquiry regarding it, by the Board of Agriculture, might tend to procuring an expeditious and cheap method of working flax, and of advantage to this Province.

You recently recommended the application of Marl to a Gwillimsbury correspondent, and 2 years since, I saw a notice to M. M., directing him to apply 30 bushels per acre, which allowance I thought very narrow.* Considering the durability, value, and abundance of Marl, I cannot account for its not being generally applied to land. We seldom laid less than 20 cart loads per acre, which lasted for as many years; in many instances, however, making the first few crops drunk with exuberance. In the deep lands, from firmer estuaries, a less quantity sufficed. Professor Johnston, in one of his lectures, states that in Hampshire he has seen the crop of wheat doubled by the application of Chalk. As Sir J. Sinclair remarks of Lime to Peat, that a second coat does no good within a few years, even where only half the usual quantity has been laid thereon in the first instance; so with Marl, a second coat does no good until after the lapse of 12 or 15 years. A remarkable instance of the fertilizing property of a subsoil is given in the *Albany Cultivator*, vol. v, p. 297, by Mr. Holbrook, in describing the farm of Messrs. Lynde in Guildford, Vt. Two years since he (Mr. B. L.) commenced digging a cellar, and opened a trench about 14 feet wide, 18 feet deep, under the whole length of the barn, 70 feet. The earth taken out was all carried to the field and spread as a top dressing upon a moist piece of mowing land; the effect was truly wonderful, doubling the quantity of hay. One would not have supposed that earth taken out to the depth of 8 feet would have produced the effect; and it certainly affords a substantial proof of the benefit to be derived from barn cellars when the salts are annually saved and made available. With deference to Mr. Holbrook, I venture an opinion that the benefit derived was from the richness of the subsoil in calcarious earth; doubtless this subsoil also runs through a location. This fact points to the fertilizing property of many subsoils. In one of the concessions leading from Yonge street to Weston, a steep hill has been cut through. Should business or pleasure lead you that road, you will see how rich in Marl the earth becomes the lower its sides descends. In Mr. Hind's lectures, he recommends 25 bushels of Lime per acre; this allowance too, approaches temperance, excepting however, the Magnesian lime of which that quantity is sufficient for one application, in preference to double the bulk, on account of its great causticity. Persons having farmed on the borders of the forest of Dean well know that 80 bushels per acre would render the soil sterile for seven years, and that it would grow nought else than quitch grass, or ferns. With other qualities of Lime this rule does not hold good. We once for experiment laid one bushel per rod, each of soaper's ashes and lime upon two acres of fallow, and at harvest saw no perceptible difference in the wheat crop. Soaper's ashes, however, are like strong drink, on some land, drawing all the good out of it with the first crop, leaving the ground unkind for years afterwards; but on other soils this manure proves permanently fertilizing as in firmer estuaries. Intemperance is beneficial, as the following will verify. When the British Army during the last war was concentrated near Plattsburg, the rum for consumption by the soldiers was stored in a

field which had been skinned time out of mind and would not return a new for an old one. On the precipitate retreat of the army the rum was all staved and the field inundated with the liquor. From that time it was remarkable for its fertility and so continued. My informant left when a young man; and this statement was afterwards confirmed by an older and permanent inhabitant from that part of the States. Excuse my poverty of language. Your pen may attract the attention of the Board of Agriculture to the value of Marl and may induce the Directors to offer Premiums for its application to land, in several locations, in order that its worth may be tested.

RAMBLER.

P. S. The parties who were concerned in Mr. Lee's patent, were Everett & Co., Bankers, London. This Bank dissolved, I believe, previous to 1820.

[* The per centage of Lime in Marls which constitutes their chief value as fertilizers, is very various. We have known 40 and even 50 or 60 cart loads applied per acre, in some parts of England. Our correspondent must have misunderstood the purport of our remarks. We have frequently applied from 100 to 150 bushels of chalk lime to the acre. In that case the dose was sufficient for a long rotation. Many of the Marls in Canada, possess a highly fertilizing power.—EDITOR.]

PLEASURES OF AGRICULTURAL PURSUITS—SUGGESTIONS RELATIVE TO THE PROVINCIAL PREMIUM LIST.

Wolf Island, Kingston, July 25, 1851.

(To the Editor of the Canadian Agriculturist.)

DEAR SIR,

There are few situations in human life in which a man can be employed more innocently, more honorably, and, to the world in general, more profitably, than that of the farmer. His life is (*ceteris paribus*) attended with fewer temptations than that of most other men, and in pursuing his calling to the utmost extent, he is not only not doing violence to any dictum of conscience, but is actually, when doing most to develope the resources of nature, doing most to advance the general interests of mankind in connection with the particular interests of himself. His occupation too is a healthy one; he breathes the healthful atmosphere of the country, treading on her green velvet carpet and canopied by her deep blue sky. The volume of nature lies open before him, and every blade, and shrub, and blossom has its mystery and its history, and invites inquiry, and amply repays the humblest student of those laws which regulate its inward structure and external mould. Then to a being ever changeable and ever changing, as is man, how beautifully consonant is nature—her endless varieties of productions—her ever varying seasons—the meadow and its grasses—the pasture and its flocks—the field and its grains and its roots—and the garden, its fruits and flowers—winter and summer and their intermediate changes—all endued with beauties of their own, where the eye is practised and the heart in tune.

But, alas! how have I rambled from my appointed task!

When honorable minds fired with enthusiasm for an honorable though a not duly appreciated, pursuit, lend their time and talents to its advance, we ought to be careful not unnecessarily to find fault; but is it not also characteristic of minds of the same stamp to listen to advice honestly given, and if acquiesced in, to *amend* what in a moment of haste may have been overlooked.

Now what, I may ask, is the practical end to be answered by demanding that each person competing for a prize should exhibit "*two* bushels," and not one bushel, of "Swedish turnips, red carrots, white carrots, long red mangel wurtzel, yellow globe, do., parsnips?" Or is such a regulation not calculated to prevent persons at a distance from bringing such cumbrous, heavy articles at all? Let us fancy an individual coming from the interior parts of the Huron or London districts with twelve bushels of roots! Why, it would not require many such loads to freight a ship. When the show was held in Kingston in '49, I, in accordance with the then regulation, exhibited a bushel of sugar beets, but was awarded only the second prize, though the person who obtained the first prize, my brother-in-law's gardener, actually exhibited only two roots, because as, I think, he told me he had but the two. I think I know the reason for adopting the regulation of the Board, but there are few people who cannot as easily, by extra and extravagant care, raise two bushels of good roots as easily as one. I live nearer than most people to the place of exhibition, but knowing what I do of the difficulty of conveying large heavy loads of things to boat, by boat, and from boat, I doubt if I shall be tempted, much as I should like to compete, to take two bushels of stuff of any one kind. Perhaps many will think with me, an alteration of regulation in this or other particulars might, if judged desirable, be signified through your paper and the public press, to the public generally.

Again, why have the Board ignored the existence of the long yellow mangel wurtzel, and on what grounds do they withhold a premium from it and confer one each of two other kinds actually named to the exclusion of it? Or why allow of one bushel of sugar beet being presented and yet demand two bushels of the aforenamed?

Again, it appears to me somewhat remarkable that, whilst Durham *Cows* are to be awarded prizes in their own peculiar class as contradistinguished from Devons, or Ayrshires; and that, whilst Leicester *Sheep*, and South Downs, are to have

SALES OF IMPROVED STOCK.

Thinking it will be interesting to our readers we give below some details of the sales of Messrs. Morris and Vail, as advertised in our previous numbers. The report of Mr. Vail's sale is taken from the *Rural New-Yorker*. We are glad to observe that several animals belonging to these two eminent breeders were purchased by parties on this side the lines, and could have wished the number had been greater. A friend of ours who attended both sales, and who has had an extensive experience in these matters, informs us that the arrangements were of the most satisfactory character; strongly reminding one of the way such things are managed in the Old Country, where annual sales of live stock have been attended with such wide and signal advantage. It is satisfactory to know that both Mr. Vail and Mr. Morris have reserved a number of very superior animals for breeding purposes; so that the public may expect an increasing interest being felt in their annual sales for the future.

MR. VAIL'S GREAT SALE OF SHORT HORNS, TROY, NEW YORK.

The sale of a part of Mr. Vail's celebrated herd of Short-horns took place on Thursday, June 26, 1851. The assembly of persons was not large, but was composed of many of our first breeders, not only from this country, but from Canada also. The animals were in good condition, and although the prices they brought were not *extravagant*, yet they were such as to give great encouragement to breeders of Short-horns. It was generally considered the most satisfactory sale ever made in this country, and proves conclusively that the time is not far distant when the Short-horns will be generally appreciated according to their true merit. The animals for sale were each labelled in the morning, with the name and number of the lot, which gave a fine opportunity for persons to examine the herd at their leisure. At about 11 o'clock the animals were arranged in the grove near the cottage, and tied. This gave an opportunity for still closer examination. At 12 o'clock the company were invited to partake of an excellent lunch; and at about 1½ o'clock the sale commenced. Mr. Miller, the auctioneer, acquitted himself admirably, and in less than two hours the animals were all sold. There were thirty-three animals sold (including two at private sale,) which brought the sum of $4,170.

Below will be found a synopsis of the sale, the price each animal brought, together with the name of the purchaser.

COWS AND HEIFERS.

Name.	Calved.	Price.	Purchaser.
Lilly 2d	—— 1845	$170	Gen. Cadwallader
" 3d	—— 1848	135	H. Wells. Cay'g co
" 4th.	—— 1849	90	Gen. Cadwallader
" 5th.	March '51	165	do.
Fun	Sept '44	235	H. Wells.
Dahlia 5th	April '49	75	Gen. Cadwallader.
Eunice 2d	July 1840	160	do.
" 3d	Aug. 1843	125	J. Osborne On'd co.
Wilddame 4th	—— 1848	220	Gen. Cadwallader.
" 5th*.	Feb. 1851	55	do.
Daisy 3d.	—— 1844	230	S. P. Chapman.
" 5th	—— 1849	150	Gen. Cadwallader.
Fill-Pail 5th	—— 1849	95	do.
Victoria 4th	May 1847	90	H. Wells.
Rosette 2d	—— 1847	175	Gen. Cadwallader.
" 3d	Sep. 1849	80	Wm. Osborn.
" 4th	Aug. 1850	105	Gen. Cadwallader.
Yellow Ekin	June 1849	110	do.
Willey	—— 1837	90	do.
Profitable 2nd	Aug. 1849	125	H. Wells.
Victoria 5th	April '51	75	Gen. Cadwallader.
Beauty	—— 1851	90	Wm. Osborn.
Red Lady	—— 1851	60	Gen. Cadwallader.
Fill-Pail 6th.	—— 1850	90	J. B. Wilson, Wis.

AT PRIVATE SALE TWO BATES HEIFERS.

Lady Barrington 5th	—— 1849	$350	Mr. Remmingt'n Pa
Hilpa 4th	—— 1851	300	S. P. Chapman.

BULLS AND BULL CALVES.

Duke of Wellington †	Oct. 1839		
Meteor ‖	July 1841		
Bippo 3d.	Sept '48	140	Dr. Richmond, C W
Leopold	Oct. 1849	50	Mr. Cameron, "
Grand Duke	Feb. 1850	95	Wm. Osborn.
Falcon	Sep 1850	90	Dr. Richmond.
Marquis	Aug 1849	60	do.
White Prince	April 1851	55	F. Yates.
Fashion	—— 1851	30	Gen. Cadwallader

* This calf sick. † Dead. ‖ Not sold.

SUMMARY OF THE SALE.—Thirty three animals sold for $4,170; average per head $126.

Twenty-five Cows, Heifers and Heifer Calves, $3,650; average per head $146.

Eighteen Cows and Heifers $3,010; average per head $167.

S. P. C.

(*To the Editor of the Canadian Agriculturist.*)

Mount Fordham, N. Y., June 28, 1851.

SIR,

I send you a correct statement of my Sale for publication, should you wish to insert it.

The thorough bred Short horns were very few and such as I could spare from my herd. Nos.

4 and 10 were starred animals and not recommended. Take those out of the lot and the cows, Heifers and heifer calves, 10 in number averaged $104 12½ per head. It will now be seen that I have cleaned all animals off my farm except thorough breeds of each kind, and I wish, to be put on record as such hereafter.

My thorough bred Bulls and Bull calves, 4 in number, averaged $126 12½ per head.

The improved dairy stock consisting of cows, heifers, and heifer calves, 20 in number, averaged $78 87 per head.

Grade Bull calves, 3 in number, averaged $80 per head.

Suffolk Pigs, 23 in number, dropped from the 7th to the 10th of April last averaged as follows:—

9 Pair of pigs averaged per Pair $27 23.
5 Single Boar Pigs per head 16 60.
1 Sow in pig, do 30 00.

Buck Lambs, 5 in number, lambed from the 21st March to 19th April, averaged per head $29 00

The sale was strictly a fair one as to bidding without any underhand arrangements for running up or whipping the Devil round the stump. Many of the animals sold for half their value, on the whole I was satisfied as a second annual sale.

Yours, &c.,
L. G. Morris.

STATEMENT OF L. G. MORRIS'S SECOND ANNUAL SALE ON THE 24TH JUNE, 1851.

Thorough bred Short Horn Cows, Heifers and Heifer Calves.

Lot 1, York, Gen. Cadwallader, Philadelphia, $110 00
2, Cleopatra, 9 years old, do do . . 85 00
*4, Coquette, 4 years, E. H. Smith, Smithtown, ... 50 00
5, Red Lady, 4 years Gen. Cadwallader, Philadelphia, ... 175 00
6, Eleanora, 4 years, do do . . 135 00
8, Miss Rolfe, 2 years. A. Van Ingen, Jr. . 105 00
9, Fame, 16 months, Gen. Cadwallader, Philadelphia. 60 00
*10, Red Rose, 15 months, G. Hopkins, Long Island 30 00
11, Kate, 5 months, G. G. Hubbard, West Needham, Mass. 140 00
12, Lily, 3¼ months, Joel Tirrell, Oswego, . 80 00
13, Beulah, 2¾ months, Gen. Cadwallader, 55 00
14, Pocahontas, 11 years, Henry Parsons, Canada West. 100 00

IMPROVED DAIRY STOCK.

Cows, Heifers, and Heifer Calves.

15, Beauty, 6 years, Dr. A. Smith, New Rochelle, ... 105 00
16, Sue, 8 years, Richard Lewis, New York, 100 00
17, Watson, Henry Parsons, Canada West, . 80 00
18, Strawberry, Gen. Cadwallader, Philadelphia. 75 00
19, Bess, 6 years, G. Hopkins, Long Island, 65 00
20, Gazelle, 4 years, G. W. Thacker, Pelham 105 00
21, Alarm, 4 years, John Rae, Morrisania, . 37 50
22, Lady Independence, 3 years, Robert Segoin, Richmond Co. 67 50
23, Miss Stewart, 2 years, James Robertson, Peekskill, ... 70 00
24, Harlem Maid, 2 years, Gen. Cadwallader, Philadelphia, ... 75 00
25, Lady Canning, 2 years, G. G. Wilmerding, Suffolk Co. L. I., ... 120 00
26, Marrietta, 2 years, Gen. Cadwallader, Philadelphia, ... 70 00
27, Sabina, 2 years, Dr. Smith, N. Rochelle, 77 50
28, Miss Mary, 19 months, Robert Segoin, Richmond County, ... 75 00
29, Bessie, I. I. Mapes, New Jersey, . . . 35 00
30, Clara, 14 months, Robert Segoin, Richmond county, ... 30 00
31, Lawra, 10 months, Gen. Cadwallader, Philadelphia, ... 30 00
32, Lucy, Gen. Cadwallader, Philadelphia, 37 50
33, Helen, 3¾ months, Morris Ketchum, N. York, ... 100 00

Short Horn and Ayrshire Cows.

34, Countess, 4 years, Gen. Cadwallader, Philadelphia, ... 82 50
35, Jeannie, 2 years, Morris Ketchum, N. Y. 90 00
36, Betty Merryman, 9 mo's, P. R. Paulding Tarrytown, ... 60 00

Nearly Thorough Bred Dutch.

37, Julia Edgar, Lewis Levingston, Rhinbeck Duchess co., ... 120 00
38, Dinah, do do do . 37 50

Oxen.

39, 1 Yoke of Oxen, S. T. Wright, . . . 145 00

Bulls and Bull Calves—Thorough Bred Short Horn.

1, Logan, 23 months old, Oliver Slate, Jr. Throgs Neck, ... 175 00
4, Mark Anthony, 4 months, J. B. Wilson, Wisconsin, ... 135 00
5, Passaic, 2 months, Joel Tirrell, Oswego, 50 00

Slightly crossed With Amsterdam Dutch.

6, Pontiac, 19 months, J. G. Godwin, Kingsbridge, ... 70 00
7. Red Rover, 4¾ months, T. C. Rives, Virginia, ... 105 00
8, Medley, 11 mo's., Edward Biddle, Rockaway, N. J., ... 65 00

Pure Breed Devon.

10, Barton, 16 months, Gen. Cadwallader, Philadelphia, ... 145 00

Buck Lambs.

1, Buck Lamb, 3 months, Aaron Clements, Philadelphia, ... 30 00
2, do 2¾ months Edward G. Faille, West Farms, ... 30 00
3, do 3¾ months, Lincoln Brooks, Providence, R. I., ... 30 00
4, do 3¼ mos., Gen. Cadwallader, Philadelphia, ... 30 00
4, do 2 months do do. . 25 00

Swine.

1, Pair Pigs. Henry Parsons, Canada West, 37 50
2, do Gen. Cadwallader, Philadelphia, 30 00
3, do Churchville, ... 30 00
4 & 5, Two Pairs of Pigs, G. G. Hubbard,

The particular office performed by the stamens and pistils was unknown until explained by Linnæus; they have, however, been considered, from remote antiquity, as of great importance in perfecting the seed and fruit. A species of palm cultivated by the ancients, has the stamens and pistils on separate trees; the Greeks discovered that, in order to have good fruit, it was necessary to plant the two kinds of trees near each other, and that without this assistance, the dates had no kernal. In the East, at the present day, those who cultivate palms select the trees which have pistils, as these alone bear fruit. When the plant is in blossom, the peasants gather branches of the wild palm trees which bear stamens on the flowers, and strew the pollen over the cultivated trees. A curious fact, illustrative of this subject, is related by an Italian writer, "that in places about forty miles distant, grew two palm trees, the one without stamens, the other without pistils; neither of them bore seed for many years; but in process of time, they grew so tall as to tower above all the objects near them. The wind, thus meeting with no obstruction, wafted the pollen to the pistillate flowers, which, to the astonishment of all, began to produce fruit."

In the summer of 1846 or 7, finding a few heads of wheat in my garden some distance from any field of wheat, I cut off all the heads but one; from this one I carefully clipped off all the anthers from the stamens, leaving the pistils, as far as possible, untouched. On examining the kernals of wheat at the proper time, I found them shrunk, especially after they had lain for some time in a dry place. Although the straw continued bright, the grains were only about two-thirds the natural size. I don't give this as an *experimentum crucis*, or decisive proof of the correctness of my theory, for more facts would be required to test it; but I give it as one fact bearing upon the point, and as a specimen of what might be done by those having good opportunities for such experiments.

All these facts, viz., the peculiar office, as explained by Linnæus, of the stamens and pistils,—the practice of the Greeks in planting near each other the palms bearing these organs when they grow on separate trees,—the practice of the peasants of the East in strewing pollen over the pistillate flowers,—the case mentioned by the Italian—and the experiment just explained in clipping off the anthers of the head of wheat, and the wellknown fact that moisture will cause the anther to explode before the pollen is ripe enough to be disseminated, all bear upon this one point, that the deficiency or imperfection of the pollen, may be the cause of the rust of wheat. That the pollen may fail to perform its functions from some other cause than the one just assigned, I am ready to admit; but it appears to me that facts and analogy bear us out in the inference that the immediate cause of the rust, is to be looked for in some defect in these two organs—the stamens and pistils.

Whatever may be the real cause of rust, that cause must be discovered, before science can suggest a remedy. Some fortunate individual, it is true, may stumble upon a remedy, but accident is entitled to very few of the many discoveries which have blessed the world. If the true cause of the rust in wheat has been pointed out in these remarks, a preventive might be suggested; but that preventive nature herself must provide.—This, it must be acknowledged, is the only practically important question. This question I must confess myself not competent to answer; yet if this article had not already grown beyond the limits which you have allowed me, I would offer a few suggestions, which might, at least, direct the attention of those better qualified than I can pretend to be, to a subject connected in so vital a manner with the prosperity of Canada.

Yours, &c.,
J. HURLBURT.

Toronto, 3rd July, 1851.

GEOLOGICAL SURVEY OF CANADA.—MR. HUNT'S REPORT.

(*Concluded from page* 126.)

Peat.—I have already alluded to the peat of the Savanne of St. Dominique, which from its abundance appears well worthy of attention in an economic point of view. In a country like Lower Canada where coal is wanting, and where wood is already becoming in some parts scarce, the public attention must ere long be turned to some other source of fuel. Among these we have at home a very important one in the shape of our immense deposits of peat. Besides the large area above alluded to, there is an extensive deposit of a similar character which appears on the road between Longueil and Chambly, and extends westward over a large tract; another described as of large size is found in the Seignory of Ste. Marie de Monnoir, and still another south of Laprairie; while the peat bogs on the south side of the Ottawa, and along the line of the Rideau Canal, which you have alluded to in your Report upon the Ottawa, are of great and but imperfectly known extent.

The value of peat as a fuel is almost unknown in this country, but the amount of it consumed in the British Isles and in Continental Europe, shows that it is a product of great and increasing importance. The amount of peat raised in France in 1845 was 420,000 tons, and its value 977,560 dollars; the number of workmen employed was

nearly 40,000. Its price in the city of New York, where it is consumed in considerable quantity, is about $4½ per ton. In addition to its use as a fuel in domestic operations, peat or the coke obtained in charring it, by a process similar to that employed for the manufacture of wood charcoal and mineral coke, is now successfully used to a large extent for the manufacture of iron, in France, Sweden, Bohemia, Bavaria and Wirtemberg; the iron thus obtained is said to be of superior quality, and the peat coke is even preferred for the refining of steel. Peat affords by distillation a brilliant gas for illumination, in a quantity as great as ordinary coal, and entirely free from those sulphurous compounds, which contaminate the gas from the latter. In Ireland according to Sir Robert Kane, it is in general use upon the steamers on the River Shannon, in the midst of a coal bearing country, and is employed in mills and factories for generating steam, to which from its flaming character it is well fitted.

By a process recently patented in Great Britain, by which the peat is condensed with the aid of a strong hydraulic press to about one third its bulk, a fuel is obtained more dense than oak wood, which by charring yields a coke eminently combustible, and heavier than wood charcoal; it can be manufactured for twenty shillings sterling per ton. The patentee, who is the managing director of the Dublin Steam Navigation Company, prepares also an artificial coal from peat, of which it is stated, as the result of experiments made on the vessels of the Company, that with ten hundred weight, the same steam power is obtained as with seventeen and a half hundred weight of pit coal; thereby saving thirty per cent. in the stowage of fuel.

For the above facts, which I have adduced in order to call attention to the value of our own peat bogs, I have been indebted to Mr. R. C. Taylor's late valuable work, "Statistics of Coal," and Sir Robert Kane on the Industrial Resources of Ireland.

The late surprising statements of the O'Gorman Mahon, as to the practicability of manufacturing oil, acids, wax, as well as gas and coke from the peat of Ireland, do not appear as yet sufficiently sustained by experiment to render them perfectly satisfactory; although such products are undoubtedly to be obtained by distillation of peat, it does not appear certain that they can be made economically available.

The peat of our vicinity is of a very excellent quality, and contains but a small portion of ashes; according to competent judges who have seen it, it is equal to the best peats of Ireland and Scotland. It shall be my endeavor to collect for another year some statistics as to the extent of our deposits, and to submit the different samples to examination in order to determine their real and relative value as fuels.

In this connection I may allude to the asphaltum or mineral pitch which is found on the nineteenth lot of the sixth or seventh range of the Township of Enniskillen, Canada West; attention was first called to it by His Excellency Earl Cathcart, who gave specimens of it to the Commission; since then Mr. Wood, the late member for Kent, has kindly sent a mass of more than one hundred pounds weight. It is said to be spread over an area of several acres, and from the specimens received it is at least two feet in thickness. Its consistence is about that of the variety known as *mineral caoutchouc*. The consumption of this material in England and on the Continent for the construction of pavements, for paving the bottoms of vessels, and for the manufacture of illuminating gas, to which it is eminently adapted, is such that the existence of deposits of it in this country is a matter of considerable importance. A careful examination of the locality with regard to its extent, will be made during the ensuing season. The specimens in my possession contain from seventy-eight to eighty-one per cent. of combustible and volatile matter.

MINERAL SPRINGS.

In my Report for 1847–'8, I had occasion to describe the well-known Sour Spring in the vicinity of Brantford, which is remarkable for containing a large amount of free sulphuric acid. Since that time I have learned of the existence of several springs of a similar nature in the same portion of the country. One of these has been described by Dr. Mack of St. Catherines, in the British American Journal for July, 1849.

It is situated about a mile and a half above Chippewa, near the Niagara River, and fills a small basin which has no visible outlet. The water is described by Dr. Mack as intensely sour to the taste, and strongly impregnated with sulphuretted hydrogen. A qualitative analysis shewed that the acid was the sulphuric, and that no chlorine was present. Protosalts of iron, and small quantities of lime and magnesia were also detected. A specimen of this water was kindly furnished me by Dr. Sutherland, by which I was enabled to confirm the results of Dr. Mack, and to detect a portion of alumina, thus completing its resemblance to the water of Tuscarora, to which it seemed closely allied in the proportion of free sulphuric acid. Dr. Chase of St. Catherines, shewed me a specimen of water from a spring near to St. Davids, which was similar in character to the above, but less strong.

Another interesting locality of acid water occurs in that vicinity, which I had an opportunity of examining personally. It is upon the S. W. corner lot of the Township of Niagara, upon the land of Mr. McKinley, and near the margin of a small rivulet, which at the time (Oct. 15th) was dry, and showed in its bed, at the depth of three or four feet from the surface, the red and green variegated Medina sandstones of the region in place; they are covered by a tenacious yellow clay, in which the basin of the spring is formed. It is nearly circular, between three and four feet in diameter, and about thirty inches in depth. The water rises to within six or eight inches of the surface, and has no visible outlet, its level is said to be nearly the same throughout the year. It is

each their own premiums. That *Pigs* should be classed under the one head of "Pigs," as if there was in reality no distinction between the large and the small breed—between the coarse-boned and the fine-boned—between the pig of early maturity and the pig which comes to its full growth and plumpness after many months. I possess the pig and the breed of pigs which took the first prize in the Province when I exhibited her; but to compare her young at six months or two years with a large boned Irish sow, or full grown Irish hog, without taking into consideration the amount of food consumed by each would hardly be fair. On this account (though I have a beautiful young boar, which Mr. Briggs of Kingston affirms, grew 44 lbs. in 22 days; and though I possess some beautiful sows of the Lord Radnor breed) it is yet dubious, if I shall go to the expense or trouble of exhibiting any of them, for the same reason that I should be unwilling to exhibit a Devon two year old bull where Durhams were allowed to enter the lists. In fact, on what *principles* could a comparison be instituted? If these were declared beforehand, then we might more clearly understand the matter and decide accordingly. I am, it is true, *only one*, but what influences or tends to influence one may influence *many*.

Again, I am told, that "a certificate must be produced to shew the breeding of *grade* animals." Now what can be the object of such a regulation? The *Thorough-bred* animals had all been provided for. Was it not, then, sufficient that *other* stock (not thorough-bred) should be allowed to compete as *such*, that is, as crossed (without the necessity of producing a pedigree), particularly as the cross (whether of Ayrshire, or Devon, or Durham,) was to make no difference in the matter of awarding the premium. There are "*grade*" animals (if I understand the term: and most people in this District, I think, understand it as I do) of *every* degree and of *most uncertain* origin,—half-bred, quarter-bred, eighth-bred—native crossed with Ayrshire, or half Ayrshire, and crossed again with Durham or Devon, or with half Devon or half Durham,—and because a certificate of breeding (often too readily to be obtained, if no conscientious scruple prevent its demand) cannot be procured, is a noble animal to be denied its merit, and a less noble or an ignoble one to obtain the reward, simply because the origin of the one was of later date, and could, therefore, be the more easily traced. Would this be just?

With these remarks you may not accord; but still, I hope, you will not refuse them a place in your journal. I was much pleased with the subject matter of Mr. Parsons letter in this month's "Agriculturist." I only regret that he has not entered more into the matter statistically. I hope the controversy will be continued, as it is one calculated to throw light upon the subject of breeding and cattle. I have not seen Mr. Tye's letter, the *Agriculturist* of last month not having come to hand (so far as I have been able to ascertain,) and this last number only a few days since and opened by me last night. We are getting some nice stock in this District—thorough-bred Durham and Ayrshire Cows and Bulls. A year old Bull, (Durham) named Halton, was bought here, about two months since, for thirty-seven pounds. I have a ram lamb which weighed on July 2nd 100 lbs., and my neighbour, Mr. Going, has one which on the 6th weighed 111 lbs. In haste,

Your's faithfully,

J. A. ALLEN.

P. S. Have not the cattle of the country some admirable qualities? Are they not worthy of notice and of premiums? Ought not *their* improvement as pure bred *natives* to be encouraged by the selection of the best by judicious care and breeding. J. A. A.

[We readily insert the foregoing communication from our respected correspondent, and invite the attention of the managers of the Provincial Association to the subjects it embraces. The premium list underwent much deliberation, and as it has been already circulated throughout the Province, we fear that it is too late for the present year, to carry out the alterations suggested by our correspondent; but we have no doubt they will receive due attention by the Board hereafter. The object of certificates to shew the breeding of *Grade* Stock, is, we apprehend, simply to gratify a natural curiosity and to impart useful information; no grade animal will be disqualified for a premium for want of a certificate, if otherwise eligible. This however will not be the case with the *pure breeds;*—from them a full and satisfatory pedigree will in all cases be required. As to articles of merit, not enumerated in the premium list,—and of such there must necessarily be more or less in an Exhibition of so extensive a range,—the Directors have always been disposed to deal as liberally as the state of the funds of the Association would allow; and we have no reason to think that the present year will be an exception. The Board of Agriculture will doubtless feel gratified in receiving suggestions and information on the important objects which they seek to promote, from all portions of the Province.]—EDITOR.

THE MONSTER OX. — The magnificently great Ox raised by Col. N. C. Baldwin of Cleaveland, will soon be sent on a pilgrimage to the World's Fair. He has been fattened for eight years, and now weighs the enormous figure of 4,000 pounds. The world may safely be challenged to produce his equal. A mile per day is now his longest land journey! He will be transported East by water, and from Boston will need a pretty good sea craft for his individual comfort.—*Cleaveland Herald.*

RUST IN WHEAT.

To the Editor of the Canadian Agriculturist.

SIR,—Permit me, through the columns of your excellent journal, to suggest, for the consideration of your scientific readers, an explanation of the cause of the rust or shrinking of wheat—that most fruitful source of anxiety and often of disappointment to the Canadian farmer. I do not, Sir, baptize these suggestions with the high title of *theory*, nor propose them as a certain solution of the cause of the rust of wheat, but I would offer them for the consideration of naturalists. The only explanation with which I have met of the rust of wheat is that given by Mr. Knight, some 40 or 50 years ago. Mr. K. suggested and scientific agriculturists have adopted his explanations, that immediately after a rain, a greater quantity of sap, than usual, ascending through the pores or capillary vessels, bursts the outer coating of the straw, and by this disorganization the further growth of the grain is prevented. From the absence of facts bearing upon this point, it may be equally impossible to refute or confirm this theory. Upon it I have only one remark to make, namely;—if the vessels of the straw are liable to burst by the increased amount of sap caused by the rain, I would ask, why they do not burst at an earlier period, when the straw is certainly more tender than at this particular time. This, I believe, does not take place, otherwise the growth of the straw might be checked when its head had attained but half its natural size? I am not aware that this ever occurs.

To the botanist I would define this theory (I use the term for convenience for want of a better) in few words. Through the agency of warm rains followed by sultry or hot weather, the *anther* explodes before it comes to maturity, and, therefore, the *pollen* which is indispensably necessary for the perfection of the grain, never reaches the *stigma*, and hence the rust or skrinking of the wheat.

For the information of the general reader and those unacquainted with botany, allow me to subjoin the accompanying explanation. If any, who are familiar with the terms and science of botany, are disposed to censure my illustrations as too prolix for themselves, such will bear in mind that they may not be so to those unacquainted with this subject; and as this point, so far as I am aware, has not been touched upon, I shall take the liberty of a wider range in the elucidation of my views than, otherwise, I should feel justified in doing.

The cause of the rust or shrinking of wheat must be looked for in the imperfection or derangement of some of those organs which are necessary for the full development of the grain. The principal organs of the growth of plants and trees are two—the stem and the leaves. In the tree the sap ascends through the *alburnum* (the last year's growth) to the leaves; through the agency of the leaves it undergoes certain chemical changes, and then descending again between the bark and *alburnum*, it forms another layer between the bark and last year's growth. If either of these organs should become deranged, as, for example, if the tree were *girdled*, or the leaves picked off, the growth of the tree would be checked or entirely stopped. In the production of the grain there are other organs, the derangement of which, suggests the most natural cause of the rust of wheat. These organs are what botanists call *stamens* and *pistils*.

On examining flowers, we shall find a number of thread-like projections in and around the centre of the blossom. If the reader will take the wild or most of the single garden flowers, he will find these organs very distinctly marked, such as the strawberry, tulip, (stamens and pistils very prominent) pink, apple, cherry, &c. The centre one or ones (for there is sometimes one, sometimes many) we call *pistils*; those surrounding them—the *stamens*. At the base of the pistil is the germ of the future seed; on the top, an opening called the *stigma*. On the top of each stamen is a knob or box, called the *anther*, filled with a dust-like substance called *pollen*. This pollen, by the bursting of the anther, is scattered, some of which falling upon the stigma of the pistil, is itself burst by the moisture of the stigma, and from it a liquid flows through the pistil to the germ. This liquid is necessary for the full developement of the seed. Without it the seed never comes to maturity. If then any disorganization of these organs should take place, the growth of the seed would be checked. As moisture causes the auther to swell and burst, if there be too much wet just before the authers are ripe, or far enough developed, they burst, and the pollen is scattered before it comes to maturity; as a necessary consequence the germ of the future seed is deprived of this indispensable nutriment, the growth of the seed is checked, and the grain shrinks—or as it is called—rust ensues.

kept in constant agitation by the escape of considerable quantities of carburetted hydrogen gas, which burns with a bright flame on contact with a light.

The soil is devoid of vegetation for a distance of six or eight feet around the basin, yet there is a layer of black vegetable matter a few inches in depth, which covers the surrounding soil and extends to the very edge of the spring; small maples are growing near.

About twenty rods further up the stream, and at a level some feet above the basin, near to the course of the rivulet, was a bed of soft mud which had resulted from the drying up of a small pool. In a depression a small accumulation of water was found an inch or two in depth; it was very sour to the taste, and near it was a small hollow filled with a very acid mud, and exhaling an odor of sulphuretted hydrogen. I was informed that in summer, when the pool is quite dry, an inflammable gas issues copiously through fissures in the clay.

I collected some bottles of the water from the basin, and have since submitted it to a partial analysis. When recent, the water has a decided flavor of sulphuretted hydrogen, the odor of which is readily perceived in the vicinity of the spring. The water is slightly turbid and yellowish, and does not become clear by repose; its taste is styptic, and strongly acid.

The specific gravity at 60° was found to be 1002.16; the usual tests shew the presence in small quantities of lime, magnesia, alumina, and protoxyd of iron; the acid is the sulphuric, without any trace of hydrochloric acid. When evaporated at a gentle heat, the water leaves a moist residue, which blackens from the presence of an organic substance which exists in considerable quantity, and which has also been remarked in the acid water of Tuscarora, and by Dr. Mack in that of Chippewa. By ignition a residue was obtained of sulphates with oxyd of iron and alumina, which in two determinations equalled .580 and .620 for 1000 of the water; the same quantity gave .074 of lime, equal to .180 of sulphate. The sulphuric acid was found by two determinations to be 2.1308 and 2.1440, mean = 2.1376. Of this .106 are required to form gypsum with the .074 of lime, leaving 2.0316 of dry sulphuric acid, equal to 2.4887 of oil of vitriol. The residue of the solid matters equalling .420, and consisting in part of sulphates, would not correspond to the decimal part of that quantity; so that in round numbers the water will contain two parts of hydrated sulphuric acid in 1000. At a future time I purpose to make a complete analysis of the fixed ingredients of this spring.

It is interesting to remark, that this water collected in clean bottles, was found at the end of some months to contain abundance of small flocculi of an organic substance, which under the microscope appeared to consist of groups of filaments, each composed of a single chain of globular homogeneous and translucent vesicles of a yellow color. The existence and development of vegetable life in a solution of sulphuric acid and sulphates of iron and alumina, appears somewhat curious and worthy of record.

It is to be remarked in connection with the view suggested by me in my Report for 1847–'48, as to the relation between these springs and the gypseous deposits, that the first of those above mentioned, like that of Tuscarora, rises from the gypsiferous rocks, and that of Niagara from the upper portion of the Medina sandstones, to some portion of which formation the one nearest St. Davids will also belong.

INQUIRY RESPECTING THE POWER OF AGRICULTURAL SOCIETIES RECEIVING GOVERNMENT AID.

To the Editor of the Canadian Agriculturist.

Sir,

Being a member of an Agricultural Society which takes the *Agriculturist* I consider myself a subscriber to that interesting and instructive paper; I therefore take the liberty of applying to you for your opinion on a late proceeding of our Society, concerning which, I in common with some others have doubts as to its lawfulness, viz: Can an Agricultural Society allow its members (independent of their yearly subscription) to subscribe to a fund, the amount of such subscription being added in the list sent to Government to subscribers names, which after realizing the Government allowance, is spent in purchasing seed wheat to be divided between those subseribers to that fund; a separate list being kept by the Treasurer as a guide in the division.

This would certainly be a cheap way of getting our seed, if it is but lawful to draw the Government allowance for such a purpose, and the majority of our Committee say it is. But as I am not one of those who think that a majority must be right, I determined to apply to you for information, as one most likely knowing the rights of the case. Hoping you will give this your earliest attention and excuse my troubling you,

I am Sir,

Your obedient servant,

Backwoodsman.

[An Agricultural Society receiving aid from the Government grant, has unquestionably a right to purchase either improved animals or new varieties of seeds, for the purpose of experiment, with a view to advance the agriculture of the District. But to purchase largely seed wheat for ordinary use, as a mere matter of business, and to devote a portion of the public grant towards

the payment for the same, appears to us not in accordance with the spirit of the law. The principal object of the public grant is to reward the producers of articles of merit, submitted to competition; and not to aid individuals in the ordinary affairs of business. The returns required to be made to the Board of Agriculture by the New Agricultural Bill, now before Parliament, will, if framed into a law, prevent the irregularity of which our correspondent complains, and several others, which we are informed have crept in under the present system.—EDITOR.]

"KNOWLSON'S COMPLETE FARRIER."

CONVULSIONS, OR THE STAG EVIL.

Of all disorders to which horses are subject, this is the worst, and is scarcely discoverable till the horse falls down raging mad. It seizes him all at once, without any previous warning. He raises his head, with his nose towards the rack, pricks up his ears, and cocks his tail. In this posture he continues, and those who do not understand the disorder never suppose that he ails anything of consequence. But other symptoms soon convince them of their mistake; for his neck grows stiff, cramped, and almost immovable; his jaws are locked and every tendon in his body becomes stiff. If he can get his mouth open, he will bite anything that comes in his way; and if he lives a few days in this condition, several knots will arise on the tendinous parts of it. Every muscle is so much cramped and extended, that the horse looks as if he were fastened to the place, with his legs stiff, wide, and staggering, and the skin drawn so tight over every part of his body, that it is almost impossible for him to move; and if you attempt to make him walk, he will be ready to fall at every step, unless he be well supported. At the same time his eyes are so fixed by the contraction of the muscles as to give him a dead look. He snorts and sneezes often, pants continually, and his shortness of breath increases till the distemper takes a favorable turn, or the horse falls down and dies.

CURE. In the first place bleed plentifully, unless the horse be old and low in flesh, or taken from some hard duty, and then you must not take so much blood. After bleeding, give the following ball, if you can get it in, but the horse is very often jaw-locked till nothing can be got in but a clyster-pipe put between his fore and axle teeth.

½ oz. of Assafœtida.
½ oz. of Gum Guaiacum.
½ oz. of Gum Camphor.

Make them up into a ball with honey, and give one of these balls every twelve hours, for two days, if you can get them in; and if not, dissolve them in a little hot beer, and give them with the clyster-pipe. (Be careful to powder the Gums.) Then make an ointment or lotion of the following.

1 oz. of Oil of Spike.
1 oz. of Oil of Amber.
1 oz. of Oil of Bricks.
1 oz. of Spirits of Sal Ammoniac.

Shake them well together, and rub the jaws just below the ears, where they lock into the upper chap; also rub the small of the back well, where the cross bones are fixed to the back bone.

In this, as in most disorders, the body should be kept gently open with laxative purges and emollient clysters. When the jaws are so locked that you cannot get anything in, do not open them by force, for that would increase the disorder instead of relieving it.

Sheep skins newly taken off, and laid with the flesh side to the horse, will sweat him greatly, and by that means draw a quantity of water from the blood, indeed, there are few things that will relieve a locked jaw more: but if they be laid on the loins, they must not lie above three hours at a time before they are turned with the wool side to the horse. You may keep the skins on twenty-four hours if you change sides every two or three hours.

If the horse cannot take either food or water in at his mouth, he must be supported by clysters, made of barley-water and milk, and given both at the mouth and the fundament. I once supported a large waggon-horse in this manner for twelve days, and he recovered.

Convulsions are caused by different things, but often by bots in the stomach; for these destructive vermin suck up the juices that should feed the blood, and bring it into a thin, bad state; indeed they are sure to destroy the horse by one means or other when there are a great number of them in the stomach. I therefore wish all who have a horse troubled with them, to destroy them before they destroy the horse.

When you suspect that these vermin are the cause of the disorder and they generally are, give the ball recommended to destroy bots. If the horse get better the first time, be sure to guard against a relapse, for you may depend upon it he will not get better a second time.

Tapping under the jaws, and at the breast, is sometimes of great service in this disorder, but I am of opinion that sweating with sheep skins will give relief much sooner. I wish to observe before I conclude this chapter, that the stiffness of the jaws continues after convulsions have ceased; in which case the following medicine should be given.

½ an oz. of Matthews' Pills.
½ an oz. of Assafœtida.

Make them into a ball, and give it twice, (one day between the doses,) and it will give relief.

FEVERS.

Horses are subject to few disorders which are not attended with more or less fever.

Causes. Fevers are often brought on by sudden heats and colds; by going out of warm stables into cold ones; by being clothed, and then having the clothes stripped off; by being turned out to grass; for many people turn their horses out to grass in the morning, and let them lay out, which is quite wrong: for when they are turned out to grass, to be there night and day, it is best to turn them out at night, for then they will graze all night; but if you turn them out in the morning, they will fill themselves in the day-time, and lie still all night, which is the way to catch cold. Most fevers are brought on by colds, therefore be careful to keep your horses as much as possible from catching cold.

Symptoms. The horse is remarkably restless, ranging from one end of his rack to the other; his flanks work, his eyes appear red and inflamed, his tongue is parched, and his breath hot and of a strong smell. He often smells at the ground, he loses his appetite, and though he will take hay into his mouth, he does not chew it; his whole body is hotter than usual, but not parched; he dungs often, but little at a time, and it is generally hard, and in small pieces; his urine is high-colored, and he generally stales with pain and difficulty; he is always craving for water, but drinks very little at a time; and his pulse is much quicker than usual.

Cure. Whenever a fever takes place, the first part of a cure is bleeding, and if the horse be strong and in good condition, the quantity should be two or three quarts. When this has been done give him a pint of the following infusion, three or four times a day.

4 oz. of Juice of Liquorice.
4 do. of Liquorice Root.
2 do. of Salt Peter.
4 do. of Salt of Tartar.
8 do. Good Raisins.
2 do. Aniseeds.
2 drams of Saffron

Boil all these together in six quarts of water, for ten minutes, let it stand till cold, and then strain it off. It is one of the best medicines for colds, coughs, hoarseness, or fevers, in either horse or man; and if it were more known, and more used, it would give greater relief in violent colds than anything yet found out. It is kind in its operations, opening the lungs, works gently by stool and urine, is free in its passage, and opening in its nature.

The horse should scarcely eat anything but mashes made of linseed and bran, and given in small quantities. If he refuses them, let him have dry bran sprinkled with water, and put a little hay into his rack, as a small quantity of it will not hurt him, and a horse will often eat hay when he will not eat anything else. His water should be rather warm,and given often but in small quantities; and clothing moderate, too much heat being pernicious in a fever. If he refuses his meat, do not let it lie before him, but take it away, and clean his rack and manger. If he be able to go about, a little walking exercise in the open air will be very proper, but you must be careful not to get him wet.

This method, with good nursing, will often be sufficient to restore the horse to health; but if he refuse his meat, more blood should be taken from him, and the drink continued; and if his dung be hard and knotty a clyster should be given.

Take Marshmallows and Cammomile flowers, a handful of each, boil them in three quarts of water till one quart is wasted; then strain it off, and add four ounces of Venice Treacle, and one pint of Pale Rape Oil.

The above will make three clysters, to be given at four hour's distance. If his pulse continue high and quick, give the following.

2 oz. of Nitre.
2 do. of Cream of Tartar.
4 do. of Glauber's Salt.
2 do. of Lenitive Electuary.

Dissolve them in hot water, give one half, and and the other half the day following. If the horse be very open in his body, you need not give the above: but if dry, be sure to give him it. If he be very open, give him four drams of bark in a gill of red port. By pursuing this method, the horse will begin to recover, and will relish his hay, though his flanks will continue to heave for a fortnight. Nothing more will be requisite to complete the cure than walking him abroad in the air, and giving him plenty of clean litter to rest on in the stable.

There is another and much worse kind of fever to which horses are very subject, and which often proves fatal if not properly treated, viz.

A COMPOUND FEVER.

Symptoms. The symptoms of this disease are —a slow fever, with great depression; and sometimes inward heat and outward cold and at other times heat all over, but not excessive. The horse's eyes are moist and languid; his mouth is continually moist, so that he is not desirous of drinking, and when he does drink, a very little satisfies him, he eats very little, and moves his joints in a loose, feeble manner, grating his teeth very disagreeably; his body is generally open, his dung soft and moist, and he stales irregularly, sometimes making little water, and at others a large quantity, which is of a pale color, and has very little sediment.

Cure. In the first place, take from the horse a moderate quantity of blood. Let it not exceed three pints, but repeat the operation according to its strength, if there be any tendency to inflamation; and after this the nitre drink already described may be given with the following addition.

1 oz. of Snake Root.
3 drams of Saffron.
3 drams of Camphor, dissolved in Spirits of Wine.

The horse's diet should be scalded bran; and linseed, boiled, and wrought up with bran. Also give him the best hay by a handful at a time. It is often necessary to feed him by the hand, for

sometimes he is not able to lift his head to the rack.

In this disease, drinking is absolutely necessary to thin the blood; and therefore if the horse refuse warm water he should be indulged with such only as has had the cold taken off. This may be done with a hot iron, or by letting it stand in the pail in a warm stable; and this will be better than forcing warm water on the horse's stomach. If this method do not prove sufficient, but the fever shall continue to increase, the following balls should be given immediately, as the danger augments every hour.

1 oz. of Camphor.
½ do. Gum Myrrh.
1 do. Squills.
2 drams of Castor.

Make them up into two balls, and give one at night, and the other in the morning. If no better in a short time, give the following infusion.

1 oz. of Snake Root.
2 do. Gentian Root.
2 do. Lemon Peel.
2 drams of Saffron.

Boil these well together in three quarts of water, and give a pint once a day. If the above ball fail of success, give the following.

1 oz. of Camphor, dissolved in Spirits of Wine.
1 do. Sal. Ammoniac.
1 pint of good Vinegar.

Put them all together, and stir them about till the fume subside. This is for two doses to be taken a twelve hours' distance, diluted with water. There is not perhaps a more powerful and effectual medicine known than camphor in all kinds of putrid fevers, it being active, attenuating, and particularly calculated to promote urine and perspiration, the two principal outlets by which relief is obtained; and if this medicine were more often given than it is, it would be a greater credit to the farrier, and give greater relief to the horse.

If the horse be costive, the clysters, or an opening drink, should be given; and should he purge moderately, be careful not to suppress it; but if it continue so long as to enfeeble the horse, give him a little red port wine and bark.

Also observe to let the animal drink plentifully, for that will greatly promote the operation of the above named medicines, as both the disorder and the medicine will cause the thirst. If the horse can bear walking about, a little open air will be very proper, but be careful to keep him well covered.

Particular regard should also be paid to his staling, which, if it flow in too great quantities, must be repressed by proper astringents, and by giving him lime water; and, on the other hand, if he stale so little as to occasion a fullness or swelling in his body and legs, give him the following drink.

1 oz. of Nitre.
2 do. Castile Soap.
1 do. Venice Turpentine.
2 drams Oil Juniper,

Make them into a ball with liquorice powder, and give them at twice in twenty-four hours' distance. These balls may be given as occasion may require, and are very proper to convey off the greasy, slimy matter from the passage of the urine, and to settle swelled legs.

These are the best methods of management, and will generally prove successful; but sometimes art will fail, and the horse will discharge a greenish or reddish gleet from his nostrils, and sneeze very frequently; he will continue to lose his flesh, become hide-bound, refuse his meat, swell about his joints, and his eyes will appear fixed and dead; a purging also ensues, and a dark-colored fœtid matter is discharged. When these symptoms appear, the case may be considered desperate, and all attempts to save the horse will be fruitless.

In this disorder you must take care not to let the horse eat too much, for his diet should be light, and in small quantities at once, and increased gradually as he may gain strength. When his skin feels kind, his ears and feet continue moderately warm, his eyes look lively, his nose remains clean and dry, his appetite mends, he lies down with ease, and dungs and stales well, you may conclude that the danger is nearly over, and that nothing more is needful but care to complete the cure. On the contrary, by overfeeding you will run the risk of bringing on a bad surfeit, and the horse may be, according to the old saying,—*killed with keeping*.

Sometimes the fever returns; so that every one who has a horse in a fever should be careful of cold for some time after, as his blood is left in a thin bad state. His legs will probably be subject to swell; and if the swelling leave a dimple when you press your finger upon it, it is a sign of a dropsy; in which case it will be adviseable to put two towels on each side of his belly, and to give him half an ounce of the best yellow bark every day for some time. At other times a fever leaves a running at his nose, of a thin yellow, glueish matter, and small swellings below his ears and chaps.

When you find these symptoms, give one ounce of crocus metalorum every day in a mash of bran, and rub the swellings with mercurial ointment.

In the years 1796, 1797 and 1798, a distemper prevailed among horses, attended with a strong fever, which in a few days turned to a putrid fever. Some horses had their eyes so much inflamed as to stand goggling out of their sockets; they had also swellings all over their bodies, and in two or three days dropped down dead. At that time I observed that the horses which had camphor given them got the best through. Some horses which had this distemper, have a relapse of it in the spring season; and it is difficult to eradicate.

Care should be taken to keep the head and throat warmer than common, as the kernels about the latter are swelled; and also to promote

this vital point I must of course rely on testimony, and M. Clausen's is as follows:

He says the flax-straw, or the ripe dry plant as it comes from the field, with the seed taken off, may be grown even here for $10 per ton, but he will concede its cost for the present to be $15 per ton, delivered, as it is necessary that liberal inducements shall be given for its extensive cultivation. Six tons of the straw or flax in the bundle will yield one ton of dressed and clean fibre, the cost of dressing which by his method so as to make it Flax-Cotton, is $35 per ton.—(Our superior Western machinery ought considerably to reduce this.) The total cost of the Flax-Cotton will be $125 per ton, or 6 cents per pound, while Flax as it comes from the field is worth $15 per ton; should this come down to $10 per ton the cost of the fibre will be reduced to $95 per ton, or less than five cents per pound. At that rate, good 'field hands' must be of rather slow sale for Cotton planting, at $1000 each, or even $700.

Is there any doubt that Flax-straw may be profitably grown in the United States for $15 or even $10 per ton. Consider that it has been extensively grown for years, even in our own State for the seed only, the straw being thrown out to rot and being a positive nuisance to the grower. Now the seed is morally certain to command, for two or three years at least, a higher price than hitherto because of the increased growth and extended use of the fibre. Let no farmer who has Flax growing be tempted to sell the seed by contract or otherwise for the present; let none be given over to the tender mercies of oil-mills. We shall need all that is grown this year for sowing next Spring, and it is morally certain to bear high price even this Fall. The sagacious should caution their less watchful neighbor on this point. I shall be disappointed if a bushel of Flax-seed be not worth more than two bushels of Wheat in most parts of our Country next May.

Our ensuing Agricultural Fairs, State and local, should be improved for the diffusion of knowledge and the attainment of concert and mutual understanding with regard to the flax culture.—For the present at any rate, few farmers can afford or will choose to incur the expense of the heavy machinery required to break and roughly dress their flax so as to divest it of four-fifths of its bulk, and leave the fibre in a state for easy transportation to the central points at which flax cotton machinery may be put in operation. If the flax straw has to be hauled fifty or sixty miles over country roads to find a purchaser or breaking machine, the cost of such transportation will nearly eat up the proceeds. If the farmers of any township can be assured beforehand that suitable machinery will next summer be put up within a few miles of them and a market there created for their flax, its growth will be greatly extended. And if intelligent, energetic, responsible men will now turn their thoughts toward the procuring and setting up of the best flax-breaking machinery (not for fully dressing but merely for separating the fibre from the bulk of the woody substance it incloses) they may proceed to make contracts with their neighboring farmers for flax-straw to be delivered in the autumn of next year on terms highly advantageous to both parties. The flax thus roughly dressed may be transported even a hundred miles to market at a moderate cost, and there can be no reasonable doubt of its commanding a good price.—M. Claussen assures me that he would now buy and profitably almost any quantity of such flax if it were to be had. The only reason, he says, why there are not now any number of spindles and looms running on flax-cotton is the want of raw material. (His patent is hardly yet three monts old.) Taking dressed and hatcheled flax, worth seven to nine cents per pound, and transforming it into flax cotton while cotton is no higher than at present it would not pay.

Of course there will be disappointments, mismistakes, unforeseen difficulties, disasters, in flax growing and the consequent fabrications hereafter as heretofore. I do not presume that every man who now rushes into flax will make his fortune; I presume many will incur losses. I counsel and urge the fullest inquiry, the most careful calculations preliminary to any decisive action. But that such inquiry will lead to very extensive flax-sowing next year,—to the erection of flax-breaking machinery at a thousand points where none such have ever yet existed—and ultimately to the firm establishment of new and most important branches of industry, I cannot doubt. Our own country is better situated than any other to take the lead in flax-business: her abundance of cheap, fertile soil, and cheap seed, the intelligence of her producers, the general diffusion of water and steam power, and our present superiority in flax-breaking machinery, all point to this result. It will be unfortunate alike to our credit and our prosperity if we indolently or heedlessly suffer other nations to take the lead in it.

P. S. M. Claussen has also a Circular Loom in the Exhibition, wherein bagging, hoisery, &c., may be woven without a seam or anything like one. This loom may be operated by a very light hond power, (of course steam, or water is cheaper,) and does work rapidly and faultessly. I mentioned this only as a proof of his inventive genius, and to corroborate the favourable impression he made on me. I have seen nothing more ingenious in the immense department devoted to British machinery than this loom.

I understand that overtures have been made to M. Claussen for the purchase of his American patent but as yet without defined result. This, however, is not material. Whether the patent is sold or held, there will next year be parties ready to buy roughly dressed flax to work up under it, and it is prepararion to grow such flax that I am urging. I believe nothingmore important or more auspicious to our farming interests has occurred for years than this discovery by M. Claussen. He made it in Brazil while engaged in the growth of cotton. It will not su-

persede cotton, but it will render it no longer indispensible by providing a substitute equally cheap, equally serviceable, and which may be grown almost everywhere. This cannot be realized too soon.

G.

Hints on laying down Land to Permanent Pasture.—It is highly important that the land should be cleaned from weeds, and well pulverised by repeated ploughing and harrowing before the seed is sown; and in cases where the soil is particularly loose and sandy, it is desirable that it should be also rolled before sowing; if this is not effected, the seeds (many of which are very minute) will some of them be too deeply imbeded in the soil, while others may not be covered at all. It is also desirable that the seeds should be sown when there is not much wind, and that they should be delivered from the machine or the hand placed rather near to the soil; otherwise, the smallest and most valuable of the seeds may be carried by the wind into the adjoining field or hedgerow. The harrows, which should be very light, must be again drawn over after sowing, and if the soil is very light and dry, the roller also; and if the soil is poor, a dressing of Peruvian guano, or superphosphate may be harrowed in with the seeds, at the rate of two hundred weight per acre. The sorts of seed should, of course, be selected in accordance with the nature of the soil, and the purposes for which the pasture is intended; this and much other useful information may be obtained from Low's "Elements of Agriculture," Stephen's "Book of the Farm," Sinclair's "Hortus Grammiensis," and other works; or from seedsmen and agriculturists, who have paid especial attention to this part of botany and agriculture. If corn is sown with the grass seeds, it should not be more than 1 bushel or 1½ bushel to the acre of corn, and for this purpose oats are preferable to barley. *On improving old pasture.*—Having as far as possible eradicated the strong growing weeds, and coarse grasses, and improved the condition of the land according to its requirements, if any, heavy harrows should be drawn over the old turf early in the spring, to loosen the soil for the admission of seeds of the finest and most nutritive kinds of perenial natural grasses and clovers, which if sown freely, will occupy the numerous small interstices between the plants of grass already growing, and thereby prevent the luxuriant growth of coarse grasses and noxious weeds. It is a good practice to sow these seeds at the same time as the top dressing is applied; but this is by no means necessary.—(*From Sutton's Catalogue of Natural and Artificial Grasses.*"

"Italian Ryegrass is not well adapted for growing *alone* as a crop for *soiling*, and should always be grown as a mixture. If it is seldom or never obtained pure, even from Italy; and when grown for a number of years in this country, the plant degenerates, loosing a part of that vigorous growth, which is one of its own characteristics. If intended for soiling, it should be sown without a cereal crop, giving two bushels of seed per acre, with or without a mixture of clovers, adding either two or three pecks of rye, barley, or oats, with one peck of tares per acre, preferring rye. We would consider September too late to sow it in Scotland, except under the most favourable circumstances. We have seen it sown with advantage in August after a plain fallow, but where the land is thoroughly prepared, we would prefer the end of March or beginning of April. Where intended for irrigation, it should cut before the cereal plants shoot out. The obtaining one or more cuttings the first season, is entirely dependent on situation, condition, irrigation, and period of sowing. Under favourable circumstances, we would consider that two cuttings would not be too much to expect the first season if properly managed. As this grass has been largely and successfully grown by several farmers of the west of Scotland, and also in some districts of England, we would be glad to have their experience as to the best modes of growing for soiling.—*The North British Agriculturist.*"

A good way of Painting Farm Buildings.—Having some years ago, to superintend the erection of a great number of farm-buildings, and it being the particular wish of the nobleman on whose estate they were built, that they should be rendered as durable as the material employed would admit, viz., timber in all parts, with the exception of the roof and foundation, I had all the body of the buildings done over with a mixture of gas-tar, two parts; pitch, one; the other part half quick-lime and common rosin, put on quite hot; it requires two coats at least; three is better, the first to be perfectly dry and hard before the second application; while the last coat was still soft I had dashed on it, with a trowel, well washed sharp sand, or more properly minute flint stones, which remained after several washings; this we managed by the assistance of a fine wire sieve and a stream of water with a good fall; this forms a perfect stone face to the timber; and from the appearance of them when I last saw them, they were likely to last many years longer. The sand contain no stone more than 3 lines in diamaer, in fact, if all the earth is washed out the smaller the better. The window frames and doors were done over with the commonest paint I could get in London, a stone-colour, three coats, besides the priming; the paint mixed thick, and dashed over in the same manner as the rest of the building with a still finer sand; this also appeared to stand well; the sand must be made perfectly dry before it is used. The expense I cannot exactly state, as I cannot my hand on the book just now, but I know it was not much, and has given satisfaction. It is right to state that the wood-work must be perfectly dry and well seasoned before this mixture should be applied; it is better to wait a year to effect this end than put it on a green wood.—*Farmer's Herald.*"

Management of Manure.—I make it a practice, during the spring and summer months, to get the parings of ditches, and any other spare earth or mould to be had on the farm, carted into a heap, as near as possible to the cow-sheds, and make up so as to turn off the rain; and when the cows are bedding down I have a quantity of the same strewn immediately behind the cows, which effectually soaks up every drop of urine that comes from them. In the cleaning out of the sheds this becomes mixed up with the solid manure, and occasionally there is a layer of about 6 inches of the dry earth spread over all; and I have found by this means my manure heaps to accumulate amazingly, and to be greatly improved in texture; and there is seldom any of that coloured matter, which is well known to be the farmer's best friend, to be seen oozing from the sides of a heap made up after the above manner, although I have had them 8 feet high; but then we have gutters to our sheds, and they are not allowed to run into our dung-pits.—*Gardiner's Chronicle.*"

a free perspiration, and to increase the running at the nose, which has the same effect in horses as spitting has in the human species; but never syringe the nose, as is often done to promote the discharge, for it has an effect quite contrary, and lessens the quantity of matter instead of increasing it; and checking the discharge of matter at the nostrils often causes swelling of the glands, and other bad consequences. Let me once for all remind you that all such discharges are critical, and thrown off by nature to free herself from the load that oppresses her, and consequently should by all means be promoted.

BROKEN WIND.

This disorder may sometimes be prevented, but cannot be cured; and it has hitherto been as little understood as any to which a horse is subject. People have had various opinions respecting its cause, and why some horses are more subject to it than others; but of all the opinions hitherto delivered, that of Mr. Gibson seems the best founded. He thinks that it is frequently owing to the hasty or injudicious feeding of young horses for sale; by which means the growth of the lungs is rapidly increased, and all the contents of the chest so much enlarged, that in a few years the cavity of the chest is not sufficient to contain them when they are expanded to perform their proper functions. Nor is this opinion founded upon bare conjecture, for horses that have died broken-winded have been opened, and the lungs and other parts found too large for the chest. But although hasty feeding is often the cause of this disorder, yet it is not always, for a narrow chest may cause it. It has been observed that horses rising eight years old are most subject to it. The reason of this is, because a horse arrives at his full strength and maturity at that age. At six he generally finishes his growth in height; then he lets down his belly, and spreads, and all his parts gain their full size; so that the pressure on the lungs and the midriff is now increased.

Also, when the horse catches cold and gets a dry cough, the lungs are much larger than they ought to be, and at that time riding sharply is enough to force the lungs so hard against the Midriff as to force a passage through it.*

A few years back some people pretended to cure the complaint by boring; but none were ever cured by it yet, nor ever will be. They made a hole above the fundament, to let out the wind that was forced through the midriff into the bowels; and this caused the horse to be continually discharging wind out of the place; so that the pretended cure was worse than the disease.

Dissection of horses that have died broken-winded, have sufficiently proved the truth of this observation; and that not only the lungs, together with the heart and its bag, were preternaturally large, but also the membrane which divides the chest; and that the midriff was remarkably thin. In some horses the disproportion has been so great that the heart and lungs have been almost twice their natural size, yet perfectly sound: and without any ulceration whatever, or the least defect in the windpipe or in its glands.

From these observations it abundantly appears, that the enormous size of the lungs, and other contents of the chest, by hindering the free action of the midriff, is the principal cause of this disorder; and as the lungs are found much more fleshy than usual, they must consequently have lost a greater part of their spring and tone.

Therefore, as this disorder is caused by the largeness of the lungs, we may conclude that it is one of those diseases which cannot be cured by art; and that the boasting of those who pretend to cure it are built on a sandy foundation. They may indeed relieve the complaint, but will never cure it, for an absolute cure is not in the power of any human being. All that I can do is to lay down some rules which have a great tendency to prevent this disorder, if pursued in time; and some remedies that will afford relief when it has taken place, and render the horse capable of performing good service, notwithstanding his misfortune.

Symptoms. The first symptom of a broken-wind is an obstinate dry cough, which is neither attended with sickness nor loss of appetite; but, on the contrary, with a disposition to foul feeding, eating the litter, and drinking large quantities of water.

Prevention. When a horse is troubled with an obstinate dry cough, and eats his litter, it will be necessary to bleed him, and to give him the mercurial physic already prescribed, repeating it two or three times. Afterwards give the following balls for some time, which have been found of very great service.

4 oz. of Gum Amoniacum.
4 do. Galbanum.
4 do. Assafœtida.
4 do. Squills.
½ do. Saffron.
6 drams of Cinnabar of Antimony.

Make the whole up into balls with honey and a little liquorice powder, and give one about the size of a pullet's egg every other morning. This is a very good ball for a dry cough.

Some horse-dealers give broken-winded horses a quantity of shot when they carry them into the market for sale, and I suppose it is to draw the bowels from the midriff, so that the disorder may not be discoverable; but at the same time there is great danger of killing the horse.

But it is not enough to give proper medicines; the horse's diet should also be carefully attended to at the same time, if we would hope for success. In order to this, the horse should eat very sparingly of hay, which, as well as his corn, should be wetted with chamber-lie, which is much better than water; and in this disease the horse is always craving after water. Chamber-lie is best for this purpose, because of the volatile salts

* The Midriff, or Diaphragm, is that which is commonly called the Skirts, and separates the Chest (where the lungs lie) from the Bowels.

which it contains, as they are a means of removing thirst. For the same reason, garlic is very efficacious in this disorder. Two or three cloves being given in each feed; or three ounces bruised, and boiled in a quart of milk and water, and given every morning for a fortnight, has been found very serviceable. So easy a remedy should never be neglected; for by warming and stimulating the solids, and at the same time dissolving the tenacious juices which choke up the vessels of the lungs, it greatly relieves this complaint.

Moderate exercise should never be omited; and although broken-winded horses are not able to endure much labor the first summer, yet many have been found less oppressed the second, and scarcely perceptibly affected the third, being then able to perform a long journey, and to endure great fatigue. A horse kept constantly in the field, when not at work, will be able to do good service for many years.

It may not be improper to observe that those who hope to cure a broken-winded horse, or even one that is troubled with an obstinate cough, by putting him to grass, will find themselves wretchedly mistaken; for on his being taken into the stable and fed with dry meat, he will be much worse than before; and some that had only a dry cough when they were put to grass, have returned broken-winded. Therefore always remember that if you cannot keep a horse of this description constantly abroad, it is best not to put him to grass at all, as instead of curing, it will tend to augment the disorder.

In short the grand secret of managing horses of this kind, consists in having particular regard to their diet and exercise. A moderate quantity of hay or corn, and water, should be given at a time, and the former constantly moistened, to prevent their wanting too much of the latter. They should have moderate exercise, but never any that is violent. By this method, and giving the following ball once every fortnight or three weeks, the horse will be able to do good service for many years.

6 drams of Socotrine Aloes.
2 do. Myrrh.
2 do. Galbanum.
2 do. Ammoniacum.
2 oz. of Bayberries, in powder.

Make the whole into a ball with a little oil of amber, and a sufficient quantity of syrrup of blackthorn. This ball operates so gently that there is no need for confinement, except a little the day following that on which it is given. The horse must have warm mashes and warm water, and the utmost care must be taken to prevent his catching cold.

THE FLAX-COTTON REVOLUTION.

From the N. Y. Tribune.

Although I have not yet found time for a careful and thorough examination of the machinery and processes recently invented or adopted in Europe for the manufacture of cheap fabrics from Flax; I have seen enough to assure me of its value and importance. I have been disappointed only with regard to machinery for Flax-Dressing, which seems on a casual inspection, to be far less efficient than the best on our side of the Atlantic, especially that patented of late in Missouri and Kentucky. That in operation in the British Machinery department of the Exhibition does its work faultlessly except that it turns out the product too slowly. I roughly estimate that our Western machines are at least twice as efficient.

M. Claussen is here, and has kindly explained to me his processes, and shown me their products. He is no inventor of Flax-dressing machinery at all, and claims nothing at all in that line. In dressing, he adopts and uses the best machines he can find, and I think is destined to receive important aid from American inventions. What he claims is merely the discovery of a cheap chemical solvent of the Flax fibre, whereby its coarseness and harshness are removed, and the fineness and softness of Cotton induced in their stead. This he has accomplished. Some of his Flax-Cotton is scarcely distinguishable from the Sea-Island staple, while to other samples he has given the character of wool very nearly. I can imagine no reason why this cotton should not be spun and woven as easily as any other. The staple may be rendered of any desired length, though the usual length is about two inches. It is as white as any cotton, being made so by an easy and cheap bleaching process. M. Clausen's process in lieu of rotting requires but three hours for its completion. It takes the flax as it comes from the field, only somewhat dryer and with the seed beaten off, and renders it thoroughly fit for breaking. The plant is allowed to ripen before it is harvested, so that the seed is all saved, while the tediousness and injury to the fibre, not to speak of the unwholesomeness of the old fashioned rotting processes are entirely obviated. Where warmth is desirable in the fabrics contemplated, the staple is made to resemble wool quite closely.—Specimens died red, blue, yellow, &c., are exhibited to show how readily and satisfactorily the flax-cotton takes any color that may be desired. Beside these lie rolls of flannels, feltings and almost every variety of plain textures, fabricated wholly or in good part from flax as prepared for spinning under M. Claussen's patent, proving the adaptation of this fibre to almost every use now subserved by either cotton or wool. The mixtures of cotton and flax, flax-cotton and wool, are excellent and serviceable fabrics.

The main question still remains to be considered—will it *pay?* Flax may be grown almost everywhere—two or three crops a year in some climates—three times the present annual product of cotton, flax, and wool, all combined, could not easily be produced even next year. But unless cheaper fabrics, all things considered, can be produced from flax cotton than from the Mississippi staple, this fact is of little worth. On

Canada.

THE CANADIAN TIMBER TROPHY.

(*From the Illustrated London News.*)

We do not pretend that the Canadian timber pyramid with its white birch bark canoe on top, and green draperies, as if in memory of the for ever departed leaves of its logs, forms a very ornamental object in the English end of the centre aisle; and in truth, at first we many times wished it at the back of the bay. By degrees, however, the appropriateness of its position has grown npon us. We have looked around on all the thousand gatherings of trade brought by wind or steam in huge ships from every seaboard in the world, and then at the canoe rightfully raised to view above them all: for in such frail vessels the first traders of the world paddled from creek to creek, and island to island exchanging fruits and skins, clubs and bows and arrows: and from such rude beginnings grew the spirit of enterprise, the desire of commerce, the daring love of sea adventure that now crowd the waters with the commercial navies of the world; from that shell of stitched bark has man by invention and indomitable industry, risen to his steam ship, conquering not alone the wind and waves but time and distance; and for the timber, although it does obstruct the view, and make but an uncouth sort of pile, it too is there rightfully enough, reminding us that even England a few centuries ago, was thick set with forests, and that the first work towards her present busy industry was to fell the old timber, and let the sunlight warm the earth. Man is no dweller in the woods; go where he may, the forest must bow before him: he clears a field for himself, and drives the plough into the soil, grows crops of annual provender for himsef and his beasts of burden and fills the land with busy multitudes. We would have the visitors of the Exhibition therefore, pause a little by the timber trophy; it may remind them of the settlers in those regions—of those who go forth to found fresh centres of commerce: to face in strength of the hope of independence, the toils and difficulties of planting new regions. There is a log hut look about the timber trophy that takes us to the back woods of Canada; to the prairies of the United States, and the vast park-like sheep ranges of Australia. In their new homes the industry that has felled the woods will push it away—will not alone grow corn and feed cattle and trade in timber, but will raise up mineral products from the earth's depths, and call machinery to its help, and organise industry, and have one day a thousand fruits of skill to show at some future Exhibition.

We have not yet had possession of Canada for a hundred years. It is set down amongst the discoveries of Sebastian Cabot in 1447. The French, it is asserted, made a map of a portion of the coast in 1508; in 1525, the country was formally taken possession of in the name of the King of France; in 1535, Cartier explored its river, and named it the St. Lawrence, from having on that saint's day first sailed upon its waters. The first settlement was in Quebec in 1608, and the country remained in possession of the French until the capture of that city by General Wolfe, in 1759; and by the treaty of Paris in 1763, the whole territory, comprising an area about three times as large as great Britain and Ireland, was ceded to England.

The Canada contributions at the exhibition, to be seen in the compartments opposite the timber trophy and a general view of which we have already given, are in themselves sufficient evidence, that, in this England beyond the Atlantic, not alone land industry, but manufacturing skill and art-workmanship, have made progress; but still, vast regions even of the best lands are covered with forests. In 1844, the occupied land in East or Lower Canada amounted to 7,540,450 acres; of which 3,083,950 were cultivated, and 4,456,400 still unreclaimed and overgrown with wood. The great plain between Lakes Huron, Erie, and Ontario, comprising about 20 000 square miles, and the best grain country of any of the northern parts of America, is still for the most part covered with lofty forests. The Ottawa or Grand River, which joins the St. Lawrence near Montreal, forms almost entirely the division of the Canadas, and is the great highway so far of the timber trade, which along its banks employs from eight to ten thousand men—an army waging perpetual war with the forests, and which, under the false impulse of our former high differential duties in favour of Canadian timber, carried on its operations most wastefully and unfavourably for the character of the timber and the advance of the trade. Hitherto, white and red pine have formed the chief timber exports of Canada, felled mainly by the banks of the ottawa, and floated in huge rafts down that river and the St. Lawrence, a distance of from 600 to 700 miles to Quebec. A single raft of timber will not unfrequently have a surface of three acres. The trees are cut down in winter, lopped, squared, dragged by horses over the frozen snow, which forms a slide for them to the water's edge. The rafts are formed upon the ice, on which when the spring thaw sets in, the lumberers, as these forest felling timber traders are called, float down to port, anchoring when they come within range at each rise of tide, and again pursuing their voyage at its fall. A raft seems almost as if some land-slip, or island, huts and all, were sailing down the river; it has five or six houses upon it, and when the wind sets fair, a range of broad thin boards serves for sails. Some of the white pine trees yield planks five feet in breadth, and the largest red pine will give 18-inch square logs, as much as 40 feet long. Of the red pine order is the hemlock a ship's futtock of which is seen in the trophy, and which it is said bears water well, and is of all the woods in those regions the most everlasting as railway sleepers, piles, or for any other underground purpose. But a single tree of the kind, which stands on a little island in the river St. Maurice, is to be found in all Eastern Canada.—The tree in close forests is drawn up frequently to more than sixty feet in height, but its best height is about 40 feet, and its diameter in such specimens is rather more than 2 feet. The specimen in the trophy was cut from a tree 15 feet in circumference and 50 feet high. Close by this hemlock is a thick plank of a beautifully feathered and highly polished dark wood, cut for veneers, from the fork of a black walnut—a timber extensively used in Canada for furniture, and some beautiful tables, sofas, chairs, beds, and a piano of which are in the compartments opposite them, and to be sold at the close of the Exhibition.—The tree from which this plank was obtained was an old giant of its kind, and judged by its size and internal appearance, though sound as a bell, had probably spread up its evergreen leaves to the sun for more than a thousand years. It stood in the valley of the Nanticoke, in the township of Walpole; and in the winter of 1847, Mr. Fisher having marked it for destruction, set up a shanty near it. Its circumference at the ground measured 37 feet, three feet up 28 feet, from which it tapered very little to 61 feet, where it branched into two trunks, 6 feet and 5 feet in diameter;

from this part the veneer plank was sawn. The whole tree cut up into 23 logs, and made in all more than 10,000 feet of timber. Three men were engaged a fortnight in felling and trimming this single tree. The walnut is a hard, close-grained wood, and it deserves trial, as it is to be had in immense quantities all over Canada, whether it would not serve as well as mahogany for ship building. It is exported to the United States, but has not as yet entered into the timber trade with England. Another furniture wood in the trophy is curled maple in its wavy grain very like satin wood, not much differing from it in colour, and growing abundantly as the pine itself. It has also found its way to the United States largely, but in small quantities to England, though it is a hard wood, and admirably adapted for furniture. A bird's eye maple veneer is also shown. The finest bird's eye is from young trees of from twelve to fourteen inches diameter. As they grow old and large the spotted curl dies out from the centre; the veneer in the trophy was, however, shaved off from a large old tree by a peculiar kind of cutting machine, which saws or shaves off the veneer in a spiral round the log, commencing at the outside, and stopping where the bird's eye pattern ceases. There are, besides, two other sorts of maple shown, the plain hard maple, used largely in house building, ordinary furniture, and immense quantities for domestic firewood and steamboats. In Montreal alone there are consumed in a single season from 2,000,000 to 3,000,000 cords of firewood—a cord of wood being a bundle eight feet long, four feet high, and four feet broad, and costing thirteen shillings English money. Each family on an average uses about 20 cords in a season. The soft maple is but rarely cut down, *as it supplies sugar abundantly.* In spring, before the snow has left the ground when the sun begins to gain strength, and there is still a sharp morning frost, the farmer bores, about four or five feet up the trunk, a hole some two or three inches deep, and sticks a little cane spout in it. In a few hours he has in his wooden trough below from two to three gallons of sap; and every morning for a fortnight as the sap rises with the sun, the tree pours its sweetness until twenty or thirty gallons are collected. In a spring without frost the supply of sugar fails and its collection is a work of no small hardship. Its after preparation is a rude process; it is evaporated to some extent, over a slow fire, and then poured out in pans to cool. The sugar maple grows from forty to fifty feet high and about six feet in circumference. The other timbers in the trophy are more generally known. The birch tree a favourite town plantation, is used in common furniture, and the timber is largely exported to the States. The oak, both white and red, is exported as staves both to America and England, and so is the ash of which Canada can furnish inexhaustible supplies. The basswood is new to us, but, it seems, has been proved so useful at home that it may be imported with advantage. It is a soft wood, but close grained and durable, something resembling our willow, and has been found most excellent in doors, and the pannelling of railway carriages. The rock elm is also a new import; it grows apparently from the bare rock to a height of 30 to 60 feet, and 18 to 20 inches in diameter, a tough durable wood, and deserving trial for ship-building purposes; and the butter-nut growing on fine dry land, and most of all a favourite, both in the States and Canada, for veneering upon, as with ordinary seasoning it is never known to warp. Last on our list is a little log on the floor, with light edges and a dark centre, marked iron-wood, of no earthly use, said our *native informant:* "It wont float, it's the contrariest wood in creation; if you want a straight piecce, and half break your heart with hard work to get it, it will twist itself crooked in no time, and if you make out a crooked piece, as sure as sunshine it will stretch out as straight as a line, it's hard as iron and as heavy as lead, and as obstinate and cranky as a old mule, and never worth either letting grow or cutting down."

Our contemporary of the *North American* commenting on the above article says :—

[We should like to see some of the sugar made, as the *News* informs us, from "soft maple." We recollect an incident which occurred a few years ago, when we, instead of sitting in the Editorial chair, were at work in the "Sugar bush." An English Gentleman, travelling through Canada, visited the "Camp" to see how sugar was made. The "tapping" process was explained to him, the sugar maple pointed out, the mode of "boiling down," "sugaring off," &c. After some time he took up an axe, and with a friend equally verdant, started out to try his hand at "tapping." He selected a large pine, which stood in the vicinity, and hacked away until the turpentine oozed forth to his infinite delight. He was not a little surprised however to find the juice so thick without boiling, and "so slightly sacharine!" Now, this gentleman, or some one of about equal experience, must have been the *News'* "native informant." The rigmarole about the "iron wood" is nearly as wide of the mark.—Ed. N. A.]

The Art of Flying.—A French journal has a letter from Madrid giving an account of a successful experiment with a new apparatus for flying. The flyer was a Miss Junita Perez, who though rather fat and corpulent, moved through the air, by the help of the wings, with great ease and rapidity. She was advertised to fly a distance of above 1200 feet, rising in the air above 600, but exceeded the programme both in height and distance. No description of the structure of the wing is given. They have a spread of some 15 feet, are fastened by ligaments of great flexibility, and arranged so as to move with great rapidity; they make a noise like a wind-mill. The astonishment of Madrid at so novel a phenomenon is described as immense.

A Mr. Thos. Darville, at Paris, also announces that he has invented a complete apparatus for flying, and that he proposes to exhibit at the Champ de Mars in the course of the present month, when he will fly from the Military School to Challiot. He will be accompanied by his two sons, one of 22 and the other of 17 years. The preparation of three sets of wings has delayed the exhibition until now. The inventor has tried his apparatus privately, with complete success, having flown across the Seine with it at 1 o'clock in the morning. His wings have a spread of 15 feet, and by their help the flyer can move up and down in the air with all the facility of a swallow, skimming along near the ground, or mounting upright to the sky, at his pleasure.—*New York Tribune.*

Large Cargo of Fruit.—A schooner arrived at New York from Baracoa, on Wednesday, bringing 12,298 pine-apples, nearly 12,000 plantains, 9,000 cocoanuts, about 100,000 bananas, and over 1,500 boxes of oranges.

SONG OF THE SOIL.

I start the bulb of the beautiful flower.
And feed the bloom of the wild wood bower;
I rear the blade of the tender herb,
And the trunk of the stalwart oak I curb;
I force the sap of the Mountain pine,
And bend the tendrils of the vine;
I robe the forest and clothe the plain,
With the ripest of fruits and richest of grain.

The cheek of the peasant I paint with health,
And yield the sturdy yeoman wealth;
I give to the spirit of commerce wings,
And prop the tottering thrones of kings.
The gorgeous palace and humble cot
Owe every atom to me they've got;
And the prince at his banquet, the hind at his board,
Alike must depend on the fare I afford.

Man may boast of his creaturely might—
His talents in peace and powers in fight;
And lord it over the beast and bird,
By the charm of his touch and the spell of his word.
But I am the sole and mighty source
Whence flows the tide of his boasted force—
Whatever his right and whoever he be,
His pomp and dominion must come from ME.

I am the giver of all that's good.
And have been since the world has stood.
Where's the wealth, on ocean, or beauty on land,
But sprung from the warmth of my fostering hand?
Or where's the object fair and free,
That claims a being, but's traced to me?
Cherish, then cherish, ye sons of toil,
The wonderful might of the fruitful soil!

And whence, says the Christian, dost thou obtain
This power so mighty, of which thou art vain?
Thou boastest of that which is furnished to thee
By Him who is Lord both of land and of sea;
For know that the treasures which come from thy sod
Are only thine own as the gift of thy God.

HINTS TO FARMERS.

Tomatoes make excellent preserves.

Toads are the very best protection of cabbage against lice.

Plants, when drooping, are revived by a few grains of camphor.

Pears are generally improved by grafting on the mountain ash.

Sulphur is valuable in preserving grapes &c. from insects.

Lard never spoils in warm weather, if it is cooked in frying out.

In feeding with corn 60 lbs. ground goes as far as 100 lbs. in the kernel.

Corn meal should never be ground very fine. It injures the richness of it.

Turnips of small size have double the nutritious matter that large ones have.

Ruta Baga is the only root that increases in nutricious qualities as it increases in size.

Sweet olive oil is a certain cure for the bite of a rattlesnake. Apply it internally and externally.

Slanderers are like flies that pass over all man's good parts to light, only upon his sores.

TURNIP FLY—(Haltica Nemorum.)—This insect (beetle) is one of the most formidable enemies to the turnip crop. It appears and continues during the whole of spring and summer. Danger is only to be apprehended in the early stages of the turnip's growth before the third and fourth leaves have been fully developed. Every endeavor should be made to force on the young plants, by means of manure. The liquid portion of stable manure is most favorable to their rapid growth. To drive away the fly, many farmers sprinkle their young turnip crops with soot; urine and the ammoniacal liquor of the gas works would be found equally efficient in preserving the plant from its depredations. The turnip-fly is seldom seen during the day time; it then occupies the under surface of the leaf.—When the sun has set, the fly may be found in abundance on the surface. The sense of smell of this beetle is remarkably acute; it can discern the odour of the turnip—its favorite food—at a great distance. Hence the reason why the odour of soot, urine, and ammonical liquor of the gas works is repugnant to the delicate sense of smell possessed by this minute and destructive beetle.

NOVEL KIND OF MANURE FOR POTATOES.—A few days ago, while passing a farm-house a little to the south-west of Kirkcudbright, the farmer said he had just been paying two killers of vermin who had been on his premises two days and three nights during which time they had destroyed 136 rats many of them very large. The bodies of the voracious plunders were placed in four drills, and first early potatoes planted on them. This is certainly a novel mode of high gardening, and an abundant crop is expected. Four months ago the same expert trappers of vermin killed 200 rats on the same farmer's premises.—*Corres. of Courier.*

CERTAIN CURE FOR FOOTAIL IN SHEEP.—The following receipt was handed to me by Thos. Wilkinson, in England. I tried it successfully myself, and feel confident in recomendiug it as an effectual cure for this troublesome disease.

Take of quicksilver, one ounce, aquafortis, (nitric acid,) two ounces, and put them together in a glass bottle; place it in the sun, or in a warm place, with the cork out, till dissolved, when it is ready for use; cut the hoof away, as far as the foot is diseased; dip a feather in the mixture, and be careful to anoint the diseased part all over. After this, keep the sheep in a dry place for eight or ten hours. They seldom require more than one dressing, if properly done. It will be necessary, also, to wet the feet of the sheep not diseased, with turpentine, to prevent it spreading further amongst the flock.

Miss Clark of Claremont, in the Township of Colborne, made last week nine lbs. of Butter off the half breed Durham cow, Polly, that took the first premium in 1848, at the Huron District Agricultural Society's show.—*Huron Signal.*

BEAT THIS WHO CAN.—On the 4th of June instant, Mr. Andrew Hope, Farmer near Perth, and a member of the Perth Agricultural Society, sheared off from one Ram, called 'Messenger,' of the Leicester breed, 12¾ lbs. of wool, of a quality seldom equalled—being particularly fine. The fleece nearly all averaged from 8 to 9 inches in the length of the wool.—*Bathurst Courier.*

CANKER IN FRUIT TREES.

We take the following observations from *Morton's Cyclopedia of Agriculture*, part 6th; an original work, now publishing, of great merit, bringing down all information relating to agriculture and rural affairs to the latest moment. The work may be procured, as published, of Mr. Maclear, bookseller, of this city, or through any of his travelling agents.

Canker is a word applied by nurserymen to almost every case in which a greater or less portion of a vegetable, of whatever size, loses its vitality from some latent disease which ultimately destroys the parent stock. Thus, we hear constantly of the canker in auriculus, melons, cucumbers, &c.; in forest trees; or, what more immediately concerns ourselves, in apple and pear trees, and occasionally in cherries, apricots, and peaches, though the disease is then more usually called gumming, from the peculiar character which it assumes. It is very probable that the maladies which pass under the name are of various kinds, but we shall confine our observations to the ravages committed in orchards and gardens, and it will be seen that many similar cases are likely to occur amongst herbaceous plants.

Every cultivator of apples and pears, on however small a scale, is soon aware, that with all his care, many of his trees become unhealthy.—Single branches of recent growth at first wither and die, without any apparent cause. The bark which we believe is the seat of the malady, is often loose upon the shoots, especially towards the base, but not invariably; for in the same shoot, that on the upper part is often firm, while that on the lower is easily detached. The line of junction between the dead and living parts is often accurately defined; ane there are seldom any fungi present, except on those parts where the bark remains firmly attached. If the dead portions are not cut off, the disease rapidly spreads to the contiguous parts, and, after a few years, the tree entirely dies, or is so unsightly and unprofitable, that the cultivator is glad to root it up. Various reasons have been assigned for the malady, but none at all satisfactory or generally applicable. The truth seems to be—judging from the well-known fact, that certain varieties are far more subject to the disease than others; some indeed, so much so, that it is impossible to cultivate them with success for any long series of years—that it is caused from lowness of temperature, accompanied by wet weather, above or below the level of the soil. Each cell of a plant, or any quantity of cells, may, in a certain sense, be considered independent of the rest; and causes which, at a given time, affect one cell or contiguous set of cells, may not affect the rest. The health of this isolated part is deranged, disease is set up, and ultimately, decomposition takes place; and, according to the law of nature, which has been so well illustrated by Liebig, where decomposed matter exists in contact with healthy, the contact rapidly communicates the disease; and thus, if several sets of cells were influenced at the same time, the disease may rapidly extend within a given branch, or down one side of a branch, the bark on the other side remaining comparatively healthy, without exhibiting any striking external indications, till after a hard winter, or series of cold ungenial weather coming in aid of the disorganization already established, the portion of bark which carried on a sluggish vegetation fails, and the whole branch seems, as if by some sudden stroke to pass into decay. That some thing of this kind takes place, appears probable from the fact, that in the same garden, trees on the walls will be healthy, while others of the same kind, less tenderly treated, will fail. It seems quite certain that, under the best system of cultivation, and under the most favourable circumstances of soil, drainage, and temperature, the disease is proportionably mitigated, even in the sorts in which, from tenderness of constitution, the tissues are easily influenced; but in those in which it is clearly hereditary, the balance of conditions necessary for healthy growth is so easily disturbed, that the greatest care and skill, and the most favourable circumstances, will not greatly modify or entirely prevent it.

The grand point in laying out orchards and gardens, is, to ascertain what sorts are most exposed to canker in any particular district, and to avoid them carefully; as the result of any extensive plantations, made without due caution in this respect, is sure to be disappointment and loss. Having ascertained this point by personal observation, care must be taken to select a situation as little exposed as possible to chilling winds; the ground must be well drained and the heads kept thin, that every portion may be well exposed to light; for it is a well ascertained fact that the disease often commences in ill ripened wood. If, however, unhappily a bad assortment was originally made, and the complete destruction of the orchard is out of the question, close pruning of all ill ripened shoots, and the covering with clay extensive cankered patches—which have been previously well cleared out with the knife, so as to promote the growth of healthy tissue from the edges—may be used as a mitigation of the evil, though nothing will entirely root it out.

The Woodworth Patent Outdoone.

A Great Invention.—Of all the labor-saving improvements of the day—and their names are legion—we have seen nor heard of none that in point of utility will compare with one which we had the pleasure to see in operation day before yesterday, at Townsend's furnace, where it was built. It is a machine for planing wood, invented by Mr. J. Beardsley, and patented by him.

We shall not attempt to describe the particular process by which it achieved such wonders. A satisfactory idea of the invention can only be formed by seeing it at work. Though simple in its construction, and easily comprehended at a glance, it is difficult to convey a clear understanding of the *modus operandi* on paper. It will be sufficient perhaps to say that nothing heretofore invented, approaches it, either in respect to the speed with which it does the work, or the accuracy of surface and finish it gives to every thing and anything which passes through it in the shape of a plank or board. A rough board placed within its vortex, comes out as even and polished as a mirror, to the tune of 108 feet a minute—and this, without driving the machine. Its maximum capacity is double and even treble this speed—and the greater the power and rapidity of the working, the more perfect is its execution. We can well believe that it will turn out work at the rate of 200 and even 300 feet per minute—or as fast as it can be fed.

In this respect, it outstrips the famous Woodsworth patent, and promises to supercede it entirely. The maximum capacity of that machine, we are told, is 30 to 40 feet per minute. Such as are interested in the progress of improvement will see in this something new and strange, and well worth inspection and study. The inventor may be seen at Townsend's furnace at any time, to exhibit the power of his machine to all visitors.—*Albany Argus.*

The Kerosene gas.—Mr. McAusland has been taking advantage of the temporary discontinuance of the coal gas lights and the dark nights, to make his experiments with Dr. Gesner's patent retort and apparatus, and he has undoubtedly established the superiority and purity of the gas generated. Large numbers of persons have witnessed with much satisfaction, the experiments made during the week, and our contemporaries have all borne testimony to the excellence of the light. We join in the hope expressed, that Mr. McAusland may reap the reward to which his exertions so justly entitle him.—*St. Johns N. F. Courier.*

A brace of beautiful grey cranes, of the most gigantic proportions, measuring from 6 to 7 feet from tip to tip of the wings, and a like distance from the beak to the heels, were killed on Mr. Ewart's mill-dam in Galt on Wednesday evening. They were the most perfect and beautiful of their race we have ever seen, far exceeding in size and elegance of plumage, European birds of like sort.

To Preserve Hams through Summer.—Make a number of cotton bags a little larger than your hams; after the hams are well smoked, place them in the bags; then get the very best sweet made hay, cut it with a cutting-box or knife, with your hands press it well around the ham in the bag, tie your bags with good strings, put on a card the year to show their age, and hang them up in your garret, or some dry place, and my word for it, you let them hang for five years, they will be better than on the day you put them up. I have kept them for seven years. This method costs but little, as the bag will last for years. The only loss is the hay, and that the cattle will eat if you give it to them in the winter. The sweating of the hams will be taken up by the hay, and it will also impart a very fine flavor to the meat.

To Keep Birds from Picking Fruits.—As the season is coming on for the depredations of birds I beg leave to report my experience of last year, when I saved my currants and gooseberries by winding colored worsted around and across my bushes, and my cherries by hanging up several pieces of tin with strong thread in the different trees, two pieces being hung near enough together to clash with the wind, which sounds with the bright reflection of tin in the sun, certainly frightened them away; and I had my due share of fruit, which the preceding year I was obliged to relinquish to them.—*Agricultural Gazette.*

New Cement for Earthen Ware.—Take a piece of wheaten flour dough, and knead and work it under water till the starch is all worked out and the water comes clean. The remainder is gluten. Put this into some vessel, keep it in a warm and damp place, like a cellar; and when it has undergone the putrefactive fermentation, which may be known by its becoming pasty and giving off an offensive smell, apply it to the edges of the broken articles and confine till dry. If the edges are free from grease and fresh broken, neither heat nor hot water effects it. This receipe is peddled as a secret.

To Preserve Beef Steaks.—As the warm season is fast approaching, when meat cannot be kept for more than a day or two in a fresh state, it will be of no inconsiderable benefit to many to be informed, that if fresh meat is rolled up in Indian corn meal, it will keep fresh for four or five days. The steak should be laid down in pieces from one to three pounds, and each piece covered entirely with the meal.

Calves.—Pimento (Allspice) tea has been proved a sovereign remedy for Diarrhœa in Calves. Two table-spoonsful of ground pimento put into three gills of boiling water, is sufficient for a portion, and should be given once in 12 hours, till relieved.

Number of Sheep in the United States.—According to the last census the number of sheep in the United States amounted to 25 millions, producing 60 million lbs. of wool, which at 30 cents per lb. would give 18 millions of dollars.

The Parsonage.—We noticed with delight in Great Britain, that among the warmest devotees of Horticulture and rural taste generally, are the country Clergymen. Their homes are always pictures comfort, snugness, and beauty; and thus exercise a more powerful influence in disseminating a love of rural life among the Agricultural population than the Castles and Mansions of the great proprietors.—*Downing in Horticulturist.*

STATE OF THE CROPS.

From almost all parts we hear but one account of the crops, and that must be regarded, upon the whole as very satisfactory. The frequent thunder showers by which the present summer has been characterised, caused a rapid growth of all spring crops. Hay, however, has in consequence been somewhat injured in the making, and we hear that rust among wheat has proved injurious in some localities, although not to any great extent. The weavil in some places has committed ravages in the wheat, but that crop must be pronounced abundant in most parts of Upper Canada, and will be safely housed in the course of another week or ten days, if the weather continue fine. Potatoes, turnips and the root crops generally are making great progress; the potatoes have been looking very healthy, although we have seen in a few instances indications of decay in the centre of the tubers. The latest accounts from England are of a promising character, and a decided decline in prices has in consequence been the result.—*August 2nd.*

Some remarks on the cultivation of flax must, for want of room, stand over till our next.

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Time and Labor Saved are Money Earned.

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SEVERANCE'S CELEBRATED IMPROVED HORSE POWER & THRASHING MACHINE one of the most valuable time and labour saving Machines ever devised by human ingenuity, respectfully inform the public that they have just completed a new and extensive Factory on Wellington Street, extending from Prince to George Street, which gives them more than double the accommodation they had in the old shops, which will hereafter, they trust, enable them to supply the whole farming community of the United Provinces with a Machine that will thrash and clean more grain in a day, with less expense and with greater cleanliness, than any other known invention—only requiring two horses.

We beg leave to say to our customers and friends, that we are again prepared to furnish those in want of Thrashing Machines with an article superior even to those heretofore manufactured by us.

Our long experience in making and the very liberal patronage we have enjoyed in the sale of our Machines, has, together with a constant determination to produce an article that will never fail to excel all others, caused us to watch carefully all the improvements that could be made from time to time, until now we feel confident in saying, that for durability, neatness of work, and amount of it they can do, our Thrashing Machines are unequalled by any in use. And while the grain is thrashed clean and none of it broken or wasted, it is at the same time perfectly cleaned, fit for the mill or any market.

All orders addressed to us or our Agent, WM. JOHNSON, will be promptly attended to.

Machines shipped to any port in Canada, and every one warranted to be as good as recommended.

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Whereas, Letters Patent were obtained, bearing date March 5, 1849, on said Machine, the public are cautioned against purchasing, using or manufacturing any imitation article, as all infrigements will be dealt with according to the law of the land.

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Agent at Hamilton, Mr. Raswell Wilson.

Toronto, July 15th, 1851. 42-6m

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A. H. ARMOUR, & Co.

Toronto, July 12, 1851. 3t

PRINTED AT THE "AGRICULTURIST" PRESS,
YONGE STREET, TORONTO, BY J. G. JUDD.

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, WILLIAM McDOUGALL, } EDITOR, ASSISTANT EDITOR.

VOL. II. TORONTO, SEPTEMBER 1850. No. 9.

The Canadian Agriculturist.

Published Monthly, at Toronto, C. W.

TERMS:

One Dollar a-Year in Advance.

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THE BOARD OF AGRICULTURE.

Though it is much to be regretted that there is so little known of the wants of agriculture and so little interest taken in promoting its success by our legislators, we are encouraged to believe that by slow degrees we shall in a few years obtain a recognition of the just demands of the Canadian agriculturist. The Bill drawn up by a committee of the Agricultural Association for the establishment of a Board of Agriculture and for organizing Agricultural Societies on a better system than the present, which is no system at all, was presented to the Government at the commencement of the session. It was read by the Attorney General West and the Inspector General, and they were both understood to approve of the measure, and promised to introduce it into Parliament. It was however entirely overlooked till within a few days of the close of the session. Finding that it was likely to be slurred over as a matter of no importance compared with bills to establish monopolies and to compel people to employ a particular class of doctors, which occupied so large a share of the attention of Parliament, Mr. McDougall, (proprietor of this paper) who drafted the Bill, determined to bring it under the notice of other members. Hon. Mr. Ross promised at once to introduce it in the Upper House. But upon his consulting with some members of the ministry they agreed to take charge of the measure in earnest, and accordingly Hon. Mr. Lesslie introduced the Bill and it was printed. At this stage a member of the Lower House who entirely misconceived the provisions of the Bill relating to the Government grant, threatened his opposition, which although at any other part of the session would have had

very little effect, yet as only two or three days remained it would have been easy for a single member by a pertinacious opposition to have thrown the whole measure overboard. Hon. Mr. Ferguson, who was heartily in favor of the entire measure, thought it better to separate the Bill and pass the part relating to the Board, than to run the risk of losing the whole in the Lower House. The result was that the first twelve sections of the Bill as printed in the June No. of the *Agriculturist* were passed with but few of the necessary verbal alterations and the remainder dropped. Hon. Mr. Price took charge of the measure in the Lower House, and on the defects of the Bill in its then shape being pointed out by Mr. McDougall, the Hon. Commissioner of Crown Lands promised to introduce such amendments as were necessary to set the Board in operation, leaving the remainder of the Bill for consideration next session. Mr. McDougall accordingly adapted the Bill to the present Societies, and added the clauses with slight modifications, requiring annual reports from County Societies and granting a sum of money for the use of the Board. These amendments would have enabled the Board to commence operations, and at the next session the whole machinery might have been completed. But Mr. Price afterwards stated that if any amendments were made which would render it necessary to send the Bill to the Upper House for concurrence, it would be lost for want of time. He therefore carried it through its several readings without any amendments—not even granting the small pittance that was asked to enable the Board to *do* any thing. This is the way the Legislature sought to promote improvement in agriculture! Salaries of public officers were increased, who, in our opinion, might be dispensed with altogether; pensions were granted, in one case, to a person already a pensioner; £15,000 were granted for a site and *buildings* for a Normal School, to be expended at the discretion of irresponsible parties, when one third of the money would have been amply sufficient; public money was voted without stint for objects of little use to the people of Canada,—thousands upon thousands,—as if the golden washings of a Sierra Nevada were deposited in all our vallies, yet *one* thousand pounds a-year to be expended in collecting and diffusing information relating to that branch of productive industry on which *all* our wealth depends—expended by a popularly organized Board making a yearly return to the Legislature of their labors and expenditures could not be thought of, or voted, for want of time!!

We leave the farmers of Canada to their own reflections on this subject. There is a cause for the contempt with which their interests are treated, and they have it in their power to remedy such a state of things. We make no reflections against any political party, for as our Legislature is at present constituted, all parties there appear to us pretty much alike. The Legislature is in the hands of place-hunting, time-serving, and upon all questions affecting the industrial pursuits of the people, *ignorant* lawyers. Until a greater number of intelligent, practical, patriotic men, whose interests are directly identified with those of the productive classes, are returned to Parliament, we shall have to complain of extravagance in every thing that will benefit office-seekers and non-producers, and the utmost indifference and parsimony in every thing that would advance the interests of the great mass of the people.

As to the Board of Agriculture, incomplete and incongruous as the law is, we would recommend the County Societies to nominate seven persons as members of the Board at their next annual meeting, and transmit their names as the law directs. The act says that the "Directors" are to "elect seven persons at their first regular meeting next after the annual meeting of the Society." This was altered, so that the *Society* might at its annual meeting elect the Board; but the amendment was not attended to. The simplest plan will be for each County Society as at present organized, to appoint at the annual meeting all its officers and active members "Directors" and after the business of the meeting is over, let these Directors hold their "first regular meeting" and agree upon the members of the Board at once. The probability is that during the next session the measure will be completed and a grant made for the use of the Board, but in the mean time it will be a step in the right direction to organize the Board as soon as possible.

We had nearly forgotten to mention the name of the member of the Lower House who has the honor (!) of defeating the Bill as introduced in the Legislative Council. Mr. Ferguson, the member for Waterloo, is entitled to the credit of defeating it, and the ministry to the credit of neglecting the whole measure till the last moment. This gentleman although of the *legal* fraternity, evidently did not understand the present law relating to Agricultural Societies, and he was equally at fault as to the effect of the proposed Bill. He declared in the presence of Hon. Mr. Ross, Mr. Buckland, and the writer, that by the present law township Agricultural Societies are not *entitled* to a share of the Government grant! That he was "tired of answering that question." The act says in plain words, "a *proportion* of the District bounty *shall* and may be granted to each County Riding or *township* Agricultural

THE ADVANTAGE OF GREEN CROPS TO A FARM.

"In travelling to various parts of England, I have remarked," says a writer in one of the English papers, "how varied are the systems of culture, and the succession of crops. In one part I have seen more than half the land under the green sward, as the red marl district of Leicestershire. In another part I find no green sward but what comes under a rotation of cropping, or Down Land, such as the Cotteswold and Chalk hills.

In Cornwall I observed, some years ago, that the old cultivators continued to crop the ground with *cereals*, until it could produce no longer, and then it was put down in grass to rest; that is, by sowing amongst the crop of oats grass seed, perhaps swept out of hay-lofts, with all manner of weed seed. In this state it lay for three or four years, until it became so mossy and weedy that it would no longer produce grass; then it was broken up for wheat, by a process which, to us of the eastern part of England, was unique. A granite stone roller, about five feet long and 12 inches diameter, had steel edges or cutters fixed at every six inches of its length, projecting from the surface of the stone about three inches; this instrument was run over the grass-land one way across, and ploughed the other way; thus was the surface of grass cut into small squares, and thrown up roughly to rot; after which it was (during the early autumn) buried for wheat or other corn. The farmers of Cornwall are fast passing into a superior system, and no longer is there need for clauses in their leases restraining them from taking more than three crops of corn in succession.—(See *Journal of Royal Agricultural Society*, vol. 6, part 2, p. 434.)"

The object towards which every system of culture should have tendency is, that of making the earth produce the greatest amount of return from the smallest possible expense; therefore the endeavour should be to extract from the soil a food for some variety of animal or other, and endeavour at the same time to increase permanent fertility. This only is to be done by leaving something behind, beyond what we take out of the soil; therefore, either more must be put on the surface, in the shape of manures, for the succeeding crop than it requires, or a portion of the crop must be left on the ground to constitute a pabulum for future crops, so to form a vegetable humus in the soil. This humus is the blackened material which is found in the pan under the usual tillage, and is the result of culture and manurings. The same humus is shewn by the blackened fertile soil of old garden grounds.

The object then, of a proper succession of crops is, that a something should be left behind from each crop, which shall be of service to a succeeding one, and not to call on the soil to yield in succession the same valuable materials that are detracted by a crop of wheat, which crop is, in all places, considered as the great desideratum. Green crops, therefore, when consumed on the land, are highly fertilizing operations; and at the same time, if the green crop is such an article that is suitable to the animal reared or fatted on it, is sure to be highly remunerative as a marketable return. Tares, clover, turnips, &c., fed on the ground, will be a charging the soil with a pabulum for future crops; and, after either of these expenditures, wheat may follow with propriety; and if these crops are only half consumed by the animals, (there being plenty of food on the farm) the advantage of ploughing in the half-consumed vegetable will be felt in the succeeding crop, for then, what is left will not have had detracted from it that portion which would have gone to constitute blood, flesh, bone, &c., in the animal that might have consumed the same.

Assertions are sometimes made by farmers, that to save a second crop of broad clover for seed will be more enriching to the land than if cut before it is ripe; that forming seed does not detract from the land; but the contrary is the fact. Producing seed is, in every case, the most exhausting of particular matters to the soil.

One of the greatest benefits to be derived from a proper succession of green crops, is the aid which the tap-rooted plants afford, by penetrating beneath the hard pan into the subsoil, there extracting and bringing up from a depth below fertilizing matters that may be deficient at the surface. These, as food to the plants, are most likely to be the aqueous particles that hold solvent in them various portions of alkalies and acids, phosphates and carbonates; and these matters are deposited on the surface at every fall of the leaf, combined with the solidified parts of air and water. Turnips, mangold wurzel, and other broad leaved plants that successively deposit their lower leaves, are enriching the surface with much organic and inorganic matters, which constitute their bulk; and this they do even if the bulbs and tubers are carried from off the land at an early period, when they have scarcely done increasing in bulk.

On referring to the analysis handed to us by Sprengel, we find that all broad-leaved plants take up from the soil much more of the fixed ingredients than do the farinaceous crops that have narrow leaves. Cabbage, beet-root, Swede turnips, &c., take up double the quantity that

would be extracted by a crop of wheat; hence the advantages of leaving the produce from these crops on the ground, and in particular their foliage.

There are instances of arid soils in England and on the continent of Europe, and in the United States, which when first taken possession of by man, were not fit for agricultural purposes; but on their being planted with trees of various kinds that yearly shed their leaves, the ground has become highly enriched for many crops that require the alkalies and carbonaceous matters to build up their structure, the alkalies having been obtained from below by aid of the roots, and carbon supplied from the carbonic acid which is solvent in the air.

The green crops on a farm must be made in proportion to the corn crops that are to be consumed. High farming may be denominated such a system that the principal part of the produce is consumed on the land, the wheat being the only crop of grain sent to market. The hay, straw, and green crops are best sent to market on four legs, in the shape of reared or fatted animals: these, according to the late prices of animal produce, have answered the best purpose for those farmers who could adopt it, and in particular those who could breed and rear their own stock; and for the land, such practice will at all times make that in the best condition.

Experience has taught the farmer, whenever he can spare a green crop, (it not being wanted for his animals) if the crop is rolled down before it obtains its full growth, and ploughed into the soil, that it is a great enricher of the same for succeeding produce. By this act, not only are all the inorganic matters deposited, but also a mass of organic in the shape of the solidified ingredients of air and water. Vetches, buck-wheat, rape, &c., may, with great success, be often ploughed into the soil for a succeeding and more valuable crop. Mere casualties have often proved to farmers certain facts; for instance, turnips have been fed off by sheep on one part of a field, and in another part of the same field the like quantity of turnips have been rotted by winter frosts and then ploughed in for a succeeding crop of wheat: it has always been the best in that part where the rotting had taken place, for this obvious reason, viz., that no part of the crop had been carried away in the shape of bone, flesh, and blood, but all, organic and inorganic, had been buried for the service of the succeeding crop.

On referring to ancient works on agriculture, it could be proved that the Roman nation were well aware that a judicious succession of crops was necessary, and that several grain crops ought not to succeed each other. Pliny informs us, that the Romans were conscious of the utility of alternating leguminous with farinaceous crops, the former acting as restoratives to the land, while the latter were exhausting ones. By burying vegetable matters in the soil, they give out their gases progressively as decomposition proceeds; thus the process acts as an aration of the soil, imparting warmth, and charging it with the gases obtainable from the air in the process of fallowing. A rotation of cropping may, therefore, be adopted, by means of which the practice of fallowing may be totally discarded.

In confirmation of the statement that the benefits to be derived from green crops, and of having one of these succeed between each of the cereals, we may quote the practice of Mr. Morton, on Lord Ducie's model farm, in Gloucestershire, where he is able to grow wheat with success every alternate year, half of all the arable land being occupied with that grain—this grain being chosen for the experiment, because it is the most remunerating one; and yet the land is not by any means exhausted, as is shewn by the increasing yearly produce, the average of the farm being often above five qrs. per acre.

The practice of Mr. Morton is to vary the green crops, so that clover, for instance, should not be repeated on the same spot oftener than every tenth year; and this he is enabled to do by having five varied green crops, taking their places in succession one after the other regularly. We are not quite sure of the order of this succession, but it is sometimes after the following with respect to the green crops.

The manuring is of course ordered in such a scientific manner, that it shall supply the exhausting matters that are abstracted from the land. The soil of the farm is of a varied rocky character, a part being on the mountain limestone, other portions on the magnesian limestone, and another on the grit of the old red sand, or Silurian district.

THE ORDER OF CROPPING IS:—

1st and 2nd..wheat succeeded by clover.
3rd and 4th..wheat succeeded by carrots or parsnips.
5th and 6th..wheat succeeded by vetches or peas.
7th and 8th..wheat succeeded by turnips or Swedes.
9th and 10th..wheat succeeded by beans.
11th and 12th..wheat succeeded by clover.

By the above order of succession, it will be seen that a tap-rooted crop succeeds a green crop, that has its nourishment more particularly from the surface soil. It will also be evident that for the above order, it is necessary there should be ten enclosures or plots of about equal sizes. The success of this culture may, in part,

Society, and paid to them by the District Society in proportion to the money that each County, Riding, or Township Society, shall have subscribed." 8 Vic., cap. 57, sec. 11. According to our legal reading the word "shall" in a Statute is imperative, and an action would lie to compel the District Society to apportion the grant. The proposed Bill did not alter the law as to the mode of division, not because those who drafted the Bill thought no improvement could be made in it, but because objections and difficulty might have sprung up in the minds of some whose cordial co-operation it is most desirable to secure. The only new provision affecting the amount of the grant to any Society was this, "that not more than three-fifths of the sum granted to any County Society shall be subject to division among township or Branch Societies."

The object of this proviso was merely to prevent difficulty between the Township and County Societies which has arisen in several instances, by enabling the County Society to retain, *if it choose to do so*, two-fifths of the grant for its own use. It was intended to *benefit* the County Societies, which as we think, and we believe, as is generally thought, it is desirable to encourage in a higher degree than others. Yet, it is a County Society, viz., that of the Wellington District, which through Mr. Fergusson, as he stated, opposed this liberal Bill! A Society be it remembered that *has never contributed a sixpence* towards the Provincial Association, in the success of which, the honor of the whole country is involved! We leave any further remarks to a future occasion, merely observing, that those gentlemen who gave their time and thought to the subject of improving and reducing to a system the present absurd and contradictory law of which we have heard constant complaints for the last three years, did so with the sincere desire to promote the agricultural interests of the Province and not of any *section*. The bill was printed a month before it was brought up in the House and no complaint was made against it; very many persons besides those concerned in its preparation who understood the subject, highly approved of it; a similar system is in successful operation in one of the lower Provinces and in several of the neighboring States; and we think that those persons who wished to defeat it for some reason of their own, were bound to point out a better plan.—[*Assistant Ed.*

Killing Sorrel.—According to the *Michigan Farmer*, plowing sorrel, with a shallow furrow, late in the fall, leaving the roots exposed to the action of the frost through the winter, has been found effectual in destroying that pernicious plant.

HOME THE BEST "LOCATION."

Mr. Solon Robinson, the celebrated American agricultural traveller and writer, made a flying visit to this part of Canada a few weeks since on business. He honored us with a call and we endeavored to show him what attention we could during his stay. As Mr. Robinson has visited and examined leisurely with the eye of a shrewd, practical agriculturist every state of the Union, we of course improved the opportunity of increasing our stock of information from one so well qualified to give it. In the course of a ride a few miles north from this city, we put the question mentioned below, and received our answer very much as we expected. We stopped at the house of a friend who owns 200 acres of good land within 10 miles of Toronto, lives in a substantial brick house and enjoys every comfort that the farmer can reasonably wish, but still as we passed along we noticed a board with these words "This Farm for Sale." While seated at the tea-table which smoked with buckwheat pan-cakes, and new made bread, studded round with delicious honey, excellent butter, two or three kinds of preserves, pies and sweet cakes, our conversation turned upon the painted board and the "best location" for the farmer. Mr. R. detailed some interesting facts without giving a very decided opinion. In the following letter he seems to have made up his mind after having seen and learnt more of Canada. We trust those of our readers who have allowed themselves to become discontented with their "home," will consider well Mr. R.'s remarks before they determine to change it.

To the Editor of the Agriculturist.

While with you the other day in a pleasant ride you were kind enough to give me up Yonge Street, you made the inquiry "after having as you have, travelled all over the United States as an agricultural traveller and writer, and having also seen somewhat of Canada, where would you choose a location to carry on farming, if now about to make a settlement for life?"

I then told you that you had put a very difficult question, but I would endeavour to answer it

in some way at my earliest opportunity. Yet the more I reflect upon it, the more difficult it grows. In early life I emigrated from the rocky hills and cold hard soil of Connecticut, to the surpassingly rich and easy soil upon the Grand Prairie in the North West corner of Indiana. In this I did well; for stricken with poverty at home, with the weight of an old established society above me, how could I rise? Had I been in the enjoyment of a comfortable home and position in the world, should I have acted wisely to "sell out the old homestead," and seek a new home in the West, as thousands have done and repented ever after? Rich as are all the western praries, it must be borne in mind that they abound in fever and ague also. With this exception they certainly offer greater inducements to the *poor* emigrant, than any other region I know of, for the land is not only capable with very little labor of providing abundant crops, but it can be purchased so cheap that all may become owners. Fifty dollars will buy forty acres.

Some parts of Virginia offer great inducements to northern farmers to emigrate thither. Lands are cheap, and by good and improved tillage, may be renovated and made productive. In lower Virginia, conveniences of navigation are great, and climate mild—really charming in winter compared to ours. Ah; says the Canadian, that's the place for me—I dislike our long cold winters. I'll go there. Stop a moment. Will it be healthy? Is is not rather billious and just a few musquitoes and some other trifling objections in summer that will balance your objections to your own winter.

And thus sir, I could go on all night showing the beauties of a hundred different sections, but always finding an equivalent of objections, till every part of the whole country is placed upon a general equality with the other. Let men learn contentment and study to make home happy instead of always running off "to the West" or some other place in search of what they might find just as well at home.

In the fall of 1834 I located, the first family in the North West county of Indiana, *fifteen miles from neighbors*. My family still reside there, though on account of my health, I do not; being as you are aware connected with A. B. Allen & Co's Agricultural warehouse and paper in New York.

But the point I wish to illustrate is this,—In these few years I have seen the county settled tolerably thickly around me, and still there are scarcely a dozen families of the original settlers now remaining. Would you know the reason? It is not that it is unhealthy, or unproductive; or any other objection that can be named; but solely that there is some other untried place a little further West, and that is always the El Dorado, *until it is tried*. And I notice when the old homestead has once been parted with, contentment with a new one is rarely ever found.

You of course begin to see the answer to your question: that my opinion is that the best place is where *home* is. Let those that have none, emigrate till they find where they can get one and then settle and go to work and improve and beautify it that they may be contented and happy, and not be looking out for a new one in every newly discovered region. Why should a Canadian farmer, situated as our friend is, whose offer to sell his farm brought on the conversation, ever seek for any other location? When I am answered that question, I will further answer yours.

In the mean time I remain most respectfully your friend "the agricultural traveller."

SOLON ROBINSON.

Kingston, Aug. 19, 1850.

FARMERS' WORKSHOPS.

EVERY farmer will find a benefit resulting from having a shop in which he can repair during the rainy weather, or at other times, his broken plow, harrows, and the wear and tear, incident to the usage of farming implements. The farmer who has a small building, or one of a size adapted to his wants, provided with a forge, anvil, hammers, bench, and a few good tools, will find himself amply repaid by the saving of time alone, spent in running after work. In the course of the year the enterprising farmer has a hundred little jobs mending in wood and iron, which if he has the means he can do himself.

If a chain is broken or a new post wanted he can soon remove the obstruction and proceed with his business; whereas, if he is obliged to go three or four miles to a mechanic, which is often the case in the country, when his work is pressing him, he suffers seriously from the loss of time.—*Ex.*

SMART WEED is almost a sure remedy in a case of cholic. Steep and drink the same as in other herb tea. In the next place it is worth $5 per hundred for a stock of cattle, if it is cut and well cured while in full bloom. Give an ox, cow, or horse, one pound per week, during the time they are up to hay, and it will keep their bowels and hide loose. It is an excellent physic. If a horse has one pound a week, there is no danger of his having botts or worms of any kind; and they will eat it sooner than they will the best of hay.

of Devon stock, which, in most of the classes, was very highly and justly commended by the Judges. In sheep and pigs, the reputation of the exhibition was well sustained, and the department of the horse is said to have been excellent.

On Friday the grand annual dinner of the Royal Agricultural Society finished the proceedings connected with the anniversary at Exeter. The banquet was most numerously attended, and, moreover, the fame of M. Soyer, the furnisher of the feast, drew many who would otherwise have been indifferent to taste the culinary wonders he had announced his intention to prepare. His bill of fare promised among other things, "rounds of beef *a la* Garrick," "a new pudding *a la* Exeter," "a baron, with a saddle back of beef, *a la* Magna Charta," and a "grand agricultural trophy of agriculture."

The chair was occupied by the Marquis of Downshire; and the speakers were the Marquis, the American Minister, Lord Woodhouse, the Earl of Yarborough, and Mr. Lister. We give an extract of the very excellent speech of Mr. Lawrence, the American Minister:—

"Gentlemen, I come here not as a foreigner—I come here to claim relationship, for the first time of my life, to see the farmers of England with my own eyes—(cheers)—believing that when I see the farmers of England I see the back bone of England. (Great cheering.) I know too well the history of my ancestors, and of my kindred in England, not to know that the farmers of England have been loyal and true to the Crown. (Cheers.) I know history too well, not to know that the battles of England, and the glories of England, are indebted to the patriotism, the prowess, and the sacrifices of the farmers of England. (Cheers.) I come here because my ancestry were all farmers, and English farmers too—and I come here first as the representative of a country whose great material interests are founded in the soil—(hear)—I come here to pledge to you, and to offer to you, in that kind, in that fraternal feeling that should exist between two great nations, the sympathy and the kind feelings of the great body of the farmers of the United States of America. (Loud cheers.) I come here as their representative, to tell you, and to make you feel and realize, that they feel under great obligations to you for the experiments which you have tried here—which we being young, and not rich—(a laugh)—are not able to try—but you having the capital and skill, and what is more, the science which has been applied to the art in Great Britain, are well able to do it all. When I look at the state of agriculture in 1850, and compare it in England with the state of agriculture in 1820, I am perfectly amazed. I have been overwhelmed to day. I have heard so much, and have seen so much, that I have not had time to digest it. (Cheers.) When I look back to this country only thirty years (and in the annals of time that is but a day), I look to that period when the average production of wheat, I believe, in this realm was not more than 20 or 22 bushels of wheat to the acre, and now high authorities, of all parties and shades of political opinion, agree that the average produce now is from 24 to 28 bushels to the acre. (A voice—30.) Thirty, then, if you please. If it were 40, I should rejoice and thank God for it. (Cheers.) We of the United States have not the slightest jealousy of the agricultural interest in England. A (laugh.) We rejoice at every new agricultural implement you bring out, suitable to your condition—we rejoice when you can, by the aid of agricultural chemistry, produce another sheaf of corn."

The cattle show is undoubtedly, the most interesting feature in these exhibitions; and on the present occasion afforded the highest satisfaction to every visitor. Of course, in the cattle classes, the great objects of attraction were the Devons, and on no previous occasion has there been brought together such a splendid collection of this breed. As a consequence, the competition was very keen, and the merits of the winners of the prizes were proportionally enhanced. The bull belonging to Mr. G. Turner, and to which the first prize was awarded, was as beautiful a specimen of the breed as it is possible to conceive. Mr. Passmore's bull, which carried off the second prize in the same class, was a handsome creature. The exhibition of short-horn bulls were inferior to those of previous years, but some of the short-horn cows and heifers were remarkably fine. Of Herefords the show was small. Among the cattle of any breed, Mr. Chapman's five years and four months old long-horned bull, which gained the first prize of £20, deserved the universal admiration which was betowed upon it.

As compared with former years there was a great falling off in horses, though there were some fine animals.

In sheep the show of South Downs and Cotswolds was considered very good, the Leicester being nothing remarkable. Some idea of the excellence of the South Downs shown may be formed from the fact, that Mr. Webb was offered £100 for the letting of a ram of his in the yard for a year, and refused it. The show of Cotswold sheep attracted as much attention among practical men visiting the exhibition as anything else. The number exhibited amounted to 135 Leicesters; 180 South Downs; 42 long wooled sheep; and 25 extra stock. It will, doubtless, excite the surprise of many of our readers to find that the prizes which for so many years had been carried off by Mr. Jonas Webb, have this year been won by Mr. W. Sainsbury, of West Lavington, Wiltshire. To have gained a triumph over such formidable rivals as Mr. Webb, the Duke of Richmond, Mr. Shelly, and other eminent breeders, of South Downs, is almost enough to make a man forget himself for a moment.

There was a capital show of pigs, and the competition for sows of a small breed was, in the estimation of the judges, almost unprecedented. Every description of animals was brought to the ground in fine condition, and scarcely an individual case of over feeding presented itself even among the pigs. The piggery seems rapidly becoming the pride and glory of British farming. Thither go no longer everything that is inferior, gross, and offensive in dietary, but barley meal, skim milk, lentils, bean meal, whey and such like delicacies. The sty is no longer a term synonymous with filth, and the grunter, both in bed and board, is comfortably and cleanly entertained during his brief career.

HIGHLAND AND AGRICULTURAL SOCIETY'S SHOW AT GLASGOW.

Auother of these monster Agricultural Meetings, after a lapse of two years, has again taken place, under the auspices of this Society at Glasgow. The show-yard was opened for the reception of implements on Tuesday, and on Wednesday morning, at seven o'clock, the trial of the implements selected by the judges for that purpose took place on the farm of Barrowfield. The experiments were conluded about eleven o'clock, and an adjournment to the show-yard took place immediately.

The exhibition of dairy produce was perhaps the largest that has yet occurred since the institution of the Society. There were competitors from the various districts of the shires of Lanark, Renfrewshire, Dumbartonshire, Linlithgow, Argyll, the Lothians, Perth, &c.; the rich green slopes and plains, and the valleys of which showed their prints in wholesome, well-made butter, and tasteful cheese. To be sure, there were samples of butter unworthy of mark; but where there were so many competitors as 246, one could not expect excellence of quality in all. In the opinion of those competent to judge, cheese made from sweet milk during the year was generally excellent, as also the most of those made from skimmed milk during the same year, and any known description of English cheese, such as Wilton, North Wiltshire, Cheshire, and Gloucester. Throughout the day, the sections allotted to cheese and butter were densely thronged by ladies and gentlemen more immediately interested in those departments of the Show;—and as the gay throng threaded the avenues of the large pavillion, the officers of police—stationed within the counters—had some difficulty in preventing the *connoisseurs* of cheese and butter from making too much "freedom" with the ample fare!

The exhibition contained a greater variety of implements and of makers than usual. The names in the catalogue have never been more numerous and diversified than on the present occasion. This is a good system, implying that more makers are beginning to compete for prizes, and that increasing attention is now given to the production of agricultural implements. The show of machines seemed more *national* than formerly —more Scotch, although we do not deem that necessarily a recommendation.

MEETING OF COMMITTEE.

At three o'clock (Wednesday) the Directors, Committee of Superintendence, and the Judges, assembled within the Town-hall for the purpose of making arrangements for the subsequent meetings of the Society; the Duke of Argyle in the chair, when the Secretary reported to the Meeting:—

This show promised to be the most useful which had ever been held under the auspices of the Highland Agricultural Society of Scotland. The greatest meeting which on any previous occasion had been held was in this city in 1844; and before they compared the one on that occasion with the present, it was right he should explain that they then gave premiums for, and encouraged a great variety of crosses and animals of a condition and of an age which the Society did not think it proper this year to encourage. The gross number of entries at Glasgow in 1844 was 1,550, including implements, and 1,554 in 1850. The object of the present meeting was to enable his Grace and the Committee to make such arrangements as would enable them to prosecute, with correctness and dispatch, the business of to-morrow. For this they were entirely dependent upon the active co-operation of the members of Committee. He might very shortly glance at what had been already done. On Monday morning the yard was opened for the admission of implements. The arrangement differed very materially from that adopted on former occasions. The change, he knew was an unpopular one, with the exhibitors; but to the judges it afforded greater facilities for comparing the different implements, ploughs with ploughs, harrows with harrows, &c., and getting through with their awards. It would also be found to be a much more interesting and agreeable arrangement for the public during the exhibition. They were aware that the trial of implements took place that morning. It had been conducted in a most admirable and most satisfactory manner. The report of the judges of the dairy produce was extremely gratifying. The quantity was astounding —there being no less than 316 entries. In regard to the quality, it had been remarked of one description, that it was a great deal too good. To-morrow morning it was intended to open the show-yard for the admission of stock so early as 5 o'clock, in order that the classification and judging might be facilitated. The judges would meet in the Queen's Hotel at 6 o'clock. There was to be a dinner in the City Hall on Thursday afternoon, for which very complete arrangements had been made; a lecture that night in the Trade's Hall, by Dr. Anderson, on the economy of manures, which he hoped would be well attended, and a breakfast in the Queen's Hotel on Friday morning at 9 connected with the same

be ascribed to the first spirited outlay on the land by his lordship, in remodelling the farm, cutting down all the timber, under-draining, subsoil ploughing, new division fences made parallel with one another, and formed into squares of about ten acres each, according to the fall of the ground—the ditches being kept open, and no wood allowed to grow in the hedges, to constitute a shade to the ground.

THRESHING MACHINES.

As in every other branch of the mechanic arts, very great improvements have been made within the last few years in agricultural implements and machines. Still it happens that in consequence of the "domesticated" peculiarities of the farmer—his very laudable habit of staying *at home*, that these improvements are very slowly introduced. The Agricultural papers and agricultural societies which have done so much good in other ways, have been of great service in extending the benefits of improved machines and implements.

The THRESHING MACHINE, which was looked upon with a good deal of suspicion a few years ago has now become one of the necessaries of the grain grower. The sound of the flail, that simple yet efficient instrument is now seldom heard in our barns. The hum of the iron spiked cylinder has taken its place. The advantages to the farmer of having his wheat threshed out at once and often immediately after harvest so that he may sell the moment the price suits him, outweigh every other consideration. This fall particularly, owing to the bad harvest weather, a very large quantity of wheat would have been lost *in the barn* had not the threshing machine been at hand.

We observe that the large eight horse power machines are more in use in this part of Canada than any kind. This appears to be bad economy. Two or three farmers joining together in the purchase of such a machine may make it answer their purpose, but even in that case inconvenience will be felt and difficulties are liable to spring up between the proprietors. The kind of machine that we should prefer is the two horse railroad powers with thresher and separator, now so much used in the Northern States. The cut at the head of this article represents one of these machines. They will thrash from 150 to 200 bushels of wheat per day and the "power" can be used for sawing wood, and well as other useful purposes on a farm. The following are extracts from the circular of one of the best makers of these machines, Emery, and Co., of Albany, N. Y., and explain its merits, cost, &c.

"The most important of the late improvements consist principally in the mode of applying the power and motion from the endless platform to the shaft of the main Driving Pulley, and obtaining the necessary motion for the OVERSHOT THRESHING MACHINE, without crossing bands or intermediate gearings, and at the same time dispensing with the small pinions and cogs on the links of the endless platform.

This Power, as will be readily seen in the cut, has the revolving plank platform traversing upon its own friction wheels and iron Railroad track. At the forward end this platform is supported by its small iron shafts, upon an iron reel about sixteen inches in diameter—the shaft of this reel extending beyond the sides of the frame work sufficiently to secure the strong converge or internal gear, which is about twenty-four inches in diameter. The shaft of the driving pulley (which pulley is about three feet in diameter,) is hung in like manner with the small gear upon one end, operating inside the converge gear before described, and consequently receives an increased motion in the same direction and carries the driving pully on the opposite end, and side of the power, for driving the overshot cylinders without crossing bands or intermediate gearing—and at the same time dispense with the small pinions and cogs on the links of the endless platform.

This arrangement entirely removes all liability of breaking and wear of links and pinions (heretofore unavoidable) as the direct stress upon the links working over small pinions is wholly avoided—thereby containing GREATER STRENGTH and DURABILITY with LIGHTER FRICTION, without the liability of breakage of links, or the wearing of links and pinions,—(no small item in the expense of repairs in most other kinds of powers in use.) The farmer or mechanic is enabled to perform a greater amount of work, or to operate with less power or elevation, as best suits his wishes.

The arrangements for tightening the endless platform by means of joint bolts connecting with the bearings of the reel shaft is the best we have seen—as it can instantly be accomplished with a common wrench, without stopping the team.

Our platform has been considerably lengthened—avoiding the difficulty of large or unsteady horses stepping over or off at either end.

These Powers were introduced to a considerable extent last season, and wherever used side by side with the most approved powers of other kinds, have given unqualified satisfaction and been preferred.

The Overshot Threshers and Vibrating Separators, with improvements, have been sold with like success as the Powers. They admit of a level feeding table, thus avoiding accidents, (which often occur with the inclined feeding board,) by preventing hard substances, sticks and stones from getting into the machine and breaking spikes, endangering those engaged with them. The Cylinder Shaft, [of cast steel,] runs in Bronze Boxes, which are so made of two parts as easily to be adjusted when worn loose, and can with little trouble, always be kept tight. The speed of the Power is such that a larger pulley is used on the Thresher than on most others—driving stronger, with less liability of slipping of bands, which last are made of Vulcanized India Rubber. The Separator makes a complete separation of Grain from the Straw, leaving it in the best condition for the Fan Mill; thus saving the labor of several men, and doing the work better.

The Double Horse-Power is capable, with 3 or 4 men, of threshing from 125 to 200 bushels of Wheat or Rye, and the single one from 75 to 100 bushels, or double that quantity of Oats per day. They are warranted to perform as above, or may be returned to us or our Agents, of whom they were purchased within 3 months, and the purchase money refunded.

They may be had in Rochester, Buffalo, or any of the principal ports on the lower or upper lakes, by adding transportation.

Good Agents will attend to the sale of them in those places. The prices will be—

For One Horse-Powers, - - $85 00
For Thresher and Separator, - 35 00
For bands, wrench, oil can, extra pieces, - - - - - 5 00—$125 00
Best Two Horse Machines, complete, ($25 more) - - - - - 150 00
Fan Mills, from - - - - - - -$22 to $28
Saw Mills, complete, - - - - - - $35

We will also furnish "Wheeler's" Machines, latest improved,

Single Setts, complete, - - - $120 00
Double do. do. - - - 145 00

Terms Cash, or approved Notes and Acceptances, with Interest. To good Agents in new locations liberal terms will be given.

EMERY & CO.
369 and 371 Broadway, Albany, N. Y.

ANNUAL MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

The twelfth Exhibition of this Society took place at Exeter, July 17th, 18th and 19th. The weather was delightfully fine and a vast concourse of spectators was drawn together from all parts of the United Kingdom, with several distinguished individuals from abroad. Never was a place more superbly decorated with evergreens, flowers, flags, &c., than the good old city of Exeter, whose citizens gave to the immense crowd of visitors a hearty English welcome.

In some departments—the implements for example—the show was not so numerous as on some former occasions. The articles appear to have been more select, sufficiently numerous to give the observer a correct idea of the state and progress of Agricultural Mechanics, without overwhelming him with the mere *number* of the articles exhibited. However, we find it stated that there were on the grounds upwards of 40 different ploughs, a dozen subsoil pulverisers, 30 drilling machines, 8 manure distributors, more than a dozen steam engines, 50 grinding mills and corn trashers, 2 dozen chaff cutters, 2 dozen trashing machines, 20 corn dressing machines, 14 turnip cutters, 7 oil cake breakers, 20 different carts and waggons, 11 draining tile machines, and numerous sets of draining tools, 19 sets of harness, 2 dozen cultivators and scarifiers, 2 dozen horse-hoes, besides numbers of horse-rakes, horse seed drillers, cider mills, hand drills, liquid manure distributors, haymaking machines, gorse bruisers, stoves and straining apparatus,—not to speak of barley humellers, barrows, bran plitters, bedsteads cheese presses, churns, clod crushers, farm railways, fencing, fire engines, forks, garden chairs, gates, hand dibbles, harness, horse power hurdles, mangles, models, pumps, ink stands, rollers, sack holders, seeds, spades, straw shakers, troughs, vegetable washers, watering machines, wheels, whipple-trees, and 60 or 70 "other articles" not being capable of being classified among the preceeding. Among this large number of implements there were but few that possessed any decided novelty, the greater portion being the same as those in former years, with alterations merely in points of detail. Fowler's draining apparatus must be regarded as an exception. It works on the principle of the mole-plough and, is adapted only to level surfaces, and subsoils free from stones: it must be regarded as an invention of peculiar merit. Croskill's Portable Farm Railway was another novelty; how far it is adapted to meet the practical wants of the farmers remains to be seen.

Professor Simonds delivered a lecture in the evening to a numerous audience on the Structure, Functions, and Diseases of the Liver in domesticated animals, a detailed notice of which we hope to find room for in a subsequent number.

The exhibition of cattle was, as might have been expected, remarkable, chiefly for the show

subject. After that, the exhibition of horses and other stock took place, concluding with the auction. These were the whole arrangements, in the carrying out of which he trusted that to the various committees the most active co-operation would be extended.

A correspondent of the *Edinburgh Advertiser*, writing from Glasgow last evening, says, this has been the great day of the Highland Society's exhibition, for it combines the treble attraction of implements, dairy, produce, and stock. The judges commenced their arduous task of examining the animals entered for competition, and of awarding the prizes, at seven o'clock; but it was not until ten o'clock, that the show yard was opened to the public. The concourse of visitors was immense. The vast population of Glasgow itself, and the proximity of the richest and most populous agricultural districts of Scotland contributed to this result. A great proportion of the nobility and gentry of Scotland were on the ground. Conspicuous among others were the Duke of Roxburgh, the Duke of Argyl, and Lord Blantyre, who had taken a deep interest in all the proceedings. The weather has been very favourable.

The show of cattle of the various breeds is perhaps unrivalled in the annals of the Highland Society for extent and the general excellence of the specimens exhibited. The short horns were very numerous, and presented some very superior models both in point of symmetry and condition. The Ayrshires were also forward in great numbers, and afforded a fine study for the breeders and purchasers of dairy stock. The Galloways were not so numerous as we would have supposed; and were excelled in number, as they were probably also in quality, by the polled Angus and Aberdeens, which they resembled closely in color and form. There was a very formidable and shaggy array of Highlanders, some of which were highly admired. There were several lots of Fifeshires, and some of the heaviest beasts in the yard belonged to this section.

The Horses exhibited were chiefly heavy draught animals. There were no fewer than 32 stallions, all of which had some splendid points. The first premium in this section has fallen to a powerful brown stallion belonging to Mr. Robert Arkley, Philipstoun, Linlithgow. Some equally magnificent draught mares were shown. Several fine horses in harness, employed by carters on the streets of Glasgow, attracted considerable attention.

Of Sheep there was a very extensive display, comprising 115 lots of Leicestershires, 40 lots of Cheviots, 51 lots of black-faced, and 35 lots of South Downs. The Cheviots, with their fleecy coverings, attracted great notice, and were admitted to be very superior. The South Downs which are now rare in Scotland, were eagerly inspected, and much admired. The Duke of Richmond is a successful competitor in this class.

The show of Swine presented great diversities of breed and appearance, and some of the animals were enormous in size. There was also a large quantity of poultry.

In immense quantity sat down to dinner, in the City Hall, at half-past three o'clock. The Duke of Roxburge acted as chairman, and the Duke of Argyle as croupier.

PLANS ADOPTED IN THE STATES TO STIMULATE IMPROVEMENT IN AGRICULTURE.

Professor Mapes, editior of the *Working Farmer* published in New York, in the course of an article on Agricultural Improvement, says that:—

The plan adopted by the state of Maryland fordisseminating agricultural information, seems to embrace much that is valuable. The legislature of that state have appointed a State Agriculturist, whose duties are to deliver lectures in each county every year, and to assist in forming County Agricultural Societies where none exist; to report to the legislature each year, with a view to its publication and dissemination among the farmers, said report to contain all the current improvements in agriculture, &c., &c. This plan has given rise to great results, and a general spirit of advancement seems already to pervade the farming community.

We have been similarly engaged in New Jersey, having delivered seventy lectures on agriculture during the last twelve months, and have been highly gratified with the results. In one township alone, the amount of increase of crops is stated to be $25,000 during the last year, as compared with those of former years, and our table is loaded with letters from farmers who have tried our recipe with success. The keepers of agricultural warehouses, plow makers, &c., assure us of increased sales of sub-soil plows, and other improved tools, and we do not fear to assert that the increase of crops in some counties of New Jersey, is not less than ten per cent.

TURNING IN GREEN CROPS.

"During the last ten years the practice of turning in green crops has been extensively adopted, and so far as my observation extends, it has been attended with the most flattering results. Old, worn-out fields, which had become so thoroughly emasculated as scarcely ts repay the cost of cultivation, have, by this process, been thoroughly renovated, and at a less cost, probably, than they could have been in any other way. In passing through the country, our attention is often drawn to farms which have been impoverished by an erroneous and emasculating system of cropping, to the

state of barren karro fields. Nothing can be more forbidding than the appearance of barrenness which they exhibit; yet even those are not hopelessly barren. By plowing under the slight vegetation they produce, and following up the undertaking by a liberal application of lime, unless the soil itself is of a calcarerous nature, and then sowing buckwheat, peas or clover, to be turned in when in blossom, a degree of energy will be communicated which will secure the continuance of increased and increasing fertility, and under a judicious system of rotary cropping, ensure good crops for a period of many years.

"'Tis folly in the extreme to till
Extensive fields and till them ill;
Shrewd common sense sits laughing by,
And sure your hopes, abortive, die,
For more one fertile acre yields,
Than the hugh breath of barren fields."

Some have recommended millet as an excellent article for turning in; but of all cultivated crops, with the exception perhaps of red clover, I consider buckwheat the best. By commencing early, three crops of this grain may be turned in in one season—a dressing which will be found sufficient, under ordinary circumstances, for the most exhausted soil, and which is by no means objectionable on the score of expense or cost."

THE *Working Farmer* REMARKS ON THE ABOVE:—The above plan of turning in green crops is very well in localities where organic deposits are not at hand; but when river deposits, muck, swamp muck, woods earth and leaves, or any other organic matter can be had and decomposed by the lime and salt mixture, and then applied to the land, it will be found to be a better practice to feed the clover and use the compost, as many tons of clover would be required to be plowed in to equal in effect one ton of well decomposed organic matter, free from the immense proportion of water which green crops usually contain.

Many argue that by plowing in green crops the inorganic constituents of the sub-soil taken up by the roots of the green crops are added to the surface soil, and this is undoubtedly true, if the plowing be deep enough to turn up the lower parts of the roots, but an ordinary sub-soil plowing will probably enable future crops to find the inorganic constituents of the sub-soil themselves, beside the other advantages arising from sub-soil plowing, such as security against the effects of drought, the gradual increase of depth of soil, and consequent increase of crops, &c.

He who falls in love with himself will find no rivals.

AGRICULTURAL EXPERIMENTS.

It is the duty of the government to place some well educated men in the position to employ their time and talents in investigating the secrets of nature, for the advancement of agriculture and the general good. Agricultural societies, which are instituted for the advancement of science, should especially engage in the preparation of such experiments, and divide the execution of them among the several members.

Science would have made much greater progress if the false shame with which agriculturists conceal every unsuccessful experiment, and the exaggerated manner which they often relate all those in which they have succeeded, had not retarded its progress.

We can experiment either by means of simple observation, by examining the subjects and agents placed in relation with each other, and by considering their reciprocal action, and observing its results, or by means of trials or experiments, by placing some well known plants in certain situations determined with precision, observing their reciprocal action, and preventing as much as we possibly can, any foreign or unknown body from influencing the results of our experiments.

A trial is a question addressed to nature; when such a question is properly put, nature will necessarily reply either yes or no.

It is only within the last century that the art of making experiments has been clearly apprehended. It is on this art that the principal power of man over the material world is founded, and that power will become more extended in proportion as he brings this art nearer perfection, and carries it into practice. There is a particular kind of agricultural experiments which have arrived almost to perfection, can be regulated with a degree of precision equal to that which is attained in the other practical sciences—these are comparative trials in the open air.

Is is true that experiments of this kind are not easily made; but, nevertheless they are in the power of every reflecting agriculturist. Whoever has acccomplished one experiment, whatever may be the peculiarity of the circumstances under which it was made, and has given a faithful account of it, has well contributed to the advancement of science, and consequently to useful practice, and has entitled himself to the gratitude of his contemporaries and of posterity. It would surpass the power of any single individual to accomplish any considerable number of these experiments, and could not be expected from him.—*Von. Thaer.*

THE JERUSALEM ARTICHOKE.

This plant is misnamed: it does not belong to the artichoke family; it is a sun-flower.

Importance has of late been attached to it, in consequence of the solicitude occasioned by the disease of the potatoe; and its tubers have been recommended, with undue confidence however, as a substitute for those of that esculent. The Jerusalem Artichoke is a native of Brazil, and was introduced in 1617. It is perfectly hardy, much more so than the potato and yam, both of them natives of the same hot climate.

Its culture is very easy. Abercrombie stated long ago, that "half a peck of roots will plant a row of 120 feet, if the sets be two feet distant in the row. "Experience has proved that the plant will grow anywhere, and that it adheres so pertinaciously to the site on which it has once been introduced as to be with great difficulty eradicated. Our own practice instructs us that it is always best to trench and enrich any ground selected for it; but to keep the plant apart from garden crops. A rod or two of land at the end of some field or orchard of good, rather free, or sandy loam, thoroughly pulverized to the depth of eighteen inches, and sufficiently manured, will produce a fair yield. Plant, in March, and set, with two or more eyes, or small entire tubers, eighteen inches asunder, in trenches, four or five inches deep, two feet apart; cover the sets, and treat the growing plants exactly according to the best method observed with the potato. In November the crop will be ready for the spade, and some roots ought then to be preserved in dry sand, or charred peat, or turf: but the tubers keep best in the ground. In March the eyes become active; the tubers then indurate assume a reddish hue, and deteriorate for the table.

The following is an extract from the *Penny Cyclopedia* on this plant:—

The term *Jerusalem* artichoke "is a barbarous corruption of the Italian *Girasole*, this species having been introduced into Europe at the Farnese garden at Rome, from whence it was originally distributed. The roots are composed of a number of oblong tubercles, very large and fleshy, reddish outside and within, resembling a potato; the stems are herbaceous and upright; the leaves are alternate and opposite, petiolate, ovel, rough, the flowers are yellow and small. It is a native of Brazil. In France, it is called *Topinambour* and *Poir de terre*. According to Braconnet and Payen, the tubers do not contain *fœcula*, but a vegetable principle called *Inuline* or *Dahline*. These tubers, when cooked, form a good substitute for potatoes, and by some are even preferred. Many animals eat them with avidity, and they are especially recommended for sheep. Payen has succeeded in obtaining from them by fermentation a liquor resembling beer, which might be used as a substitute for that beverage. This species is not easily produced from seed in this country; but it may be propagated by its roots, which will produce stems for many years, if allowed to remain in the same place. It will grow in almost any soil, but the better the soil, the more vigorous and productive will be its growth."

This vegetable, in common with all other culinary roots, should be cooked by gentle simmering till it becomes quite tender throughout. Some boil it before the removal of the rind, others peel it while raw; the jelly is more effectually preserved by the former method: but in either case it should be served up in a dish, with as much simple thick milk as will just cover the tubers; thus dressed it is excellent, and may be eaten with salt or sugar, with or without a little butter, according to taste. The great obstacle to its general introduction is the decided dislike which which many persons entertain for it. In nutritive qualities it is unquestionably rich; and if the sauce be thickened with oatmeal instead of wheat flour, these will be proportionably increase: the plant likewise is exceedingly productive; its importance under existing circumstances is, therefore, very considerable. As regards its more important uses in the farm yard, it will be found that animals unaccustomed to it will not readily eat it. They may be given raw or boiled to pigs. It can only be proper for cultivation in odd corners of fields, and otherwise waste places. Under favorable circumstances ten or twelve tons per acre have been grown.—*Morton's Cyclopœdia of Agriculture.*

GERMAN MFTHOD OF CULTIVATING POTATOES.

The Editor of the *Working Farmer* is trying an experiment to test the advantage of a method of raising large crops of potatoes which is said to be practiced with success in Germany. He says:—

We planted whole tubers and at four feet apart. When the vines were six inches high they were spread out horizontally, like the spokes of a wheel, and entirely covered with three inches of soil; in a few days they sprouted through, and when again six inches high the process of bending down and covering was repeated, and thus continued at each new growth to this time. We have covered 100 hills four times, 100 hills three times, and the balance of the field are cultivated in the ordinary way. Those cultivated in the ordinary way are all in blossom at this

time—many of those covered three times are also in blossom—while those covered four times do not yet show blossom. We tried this experiment, as in duty bound, but without much confidence in the statement made in the French and German journals in relation to its success. We will freely acknowledge that thus far we are surprised at the indications of increased crops, but shall not believe that the potatoes will be of fair size until they become so; the number is undoubtedly much increased by the covering, as many of the leaf stacks have numbers of tubers formed upon them.—Ed.

WHEAT CROP IN THE WEST.

The Western wheat crop says an American paper is a harp upon which eastern speculators play a great many curious tunes. Every spring you find them pitching down on to what our worthy friend Robbins of "musical memory," used to call the "wailing D." If their accounts are to be believed, this crop is as sure to be cut off every spring, as the spring comes. It is either winter-killed, or it is too wet, or too dry, or the worm, or the bug, or the fly, or the rust, has always demolished the whole of it, and up goes the flour market, and many a "nimble sixpence," do the speculators make out of it. It has been so this spring. The drought was reported to have killed the whole crop, and quite a rise in flour was the result of the story. Indeed, they went so far as to send a barrel or two back from Boston to Buffalo, and then cry out that all the flour in the East had been ordered back to feed the Far West with. But it seems a kind Providence will not endorse the falsehood, and is pouring out from its blessed horn of plenty a most glorious crop.

The *Michigan Farmer* says: "But the wheat crop, the great staple of Michigan, which keeps our entire population in a constant state of agitation, between hope and fear, like the waves of the sea, "casting up mire and dirt,"—what of it? Well, we were prepared for a doleful sight. Guess our disappointment, then, when we found breaking upon our vision, on the right hand and on the left, some of the finest wheat fields we ever saw; and that for a distance of more than twenty miles' travel. Occasionally a field showed slightly the effects of the drought, and here there one was seriously affected, but most fields exhibited little signs of suffering, and very many, especially the deep plowed, none at all. We certainly never travelled through the same extent of country, in our own or any other state, where so many fields presented so rich a promise of an abundant harvest. We are aware that the appearance of wheat fields, as seen from the road by the passing traveler, at the stage of growth they had then attained, is very deceptive. But we entered many fields, and examined them sufficiently to justify the above statement.

We were informed by a person who had traveled through Macomb county, that through all the timbered portion of that county, the wheat fields presented an equally, fine appearance. But upon the plains and upon stiff clay land, the crop has suffered more; though we trust not to the extent represented. An individual from the western part of Oakland county, remarked to us, that the late sown wheat had suffered much in that region, but that the early sown stood the drought well, and that is an opening region. The universal testimony is, that the deeper the crop is put in less the injury from drought."

THE POTATO ROT.

We have received intelligence that the Potato Rot has made its appearance in the crops in the Township of Eramosa. It was first observed six or eight days ago, and since that time, has gradually been extending. The haulm appeared quite fresh and healthy, a fortnight ago, but during the last few days, has rapidly decayed. On examination, many tubers were found touched with the disease, a rotten speck, about the size of an English shilling, appearing upon them. We understand the disease was first observed by Joseph Parkinson, Esq., and has been found to exist in the crops on different farms in the Township. It is feared that, should there be much more rain, the crop will not be worth gathering. —*Guelph Adv.*

DRESSING CATTLE.

Much has been said on the propriety of wisping and currying cows and fattening oxen in the byre, and much may be said in recommendation of the practice, were the cattle always confined to the byre; but animals which are at liberty a part of the day do not require artificial dressing, except when in high condition, inasmuch as they can dress their own, and one another's skin, much better than any cattle man. With cattle constantly confined in the byre, it seems indispensable for their good health to brush their skin daily; and I believe no better instrument can be used for the purpose than an old curry-comb, assisted with a wisp of straw. Currying should only be performed on the cattle when not at food; and this should be strictly enjoined, for people, who have charge of animals have a strong propensity to dress and fondle them when at food; from no desire to torment them, but chiefly because they will then be in a quiet mood. Still the process has a tendency to irritate some cattle, and please others so much as to make them desist eating, and on that account should be prevented. Many other animals are never more jealous of being approached

General Science and Miscellany.

PRESERVING FRUITS.

The *Horticutturist* contains the following mode of preserving fruits, which may be of use to housekeepers:—

"Send to your tinsmith and get a sufficient number of tin canisters, very carefully and tightly made. They should be of uniform size; and the shape preferred here is seven inches high by five in diameter—uniform cylinders.

"Select the fairest fruit—peaches, strawberries, or what you please. It should be *just* ripe, but not past the mature stage. Fill the canisters, place the tin lids on their tops, and solder them very carefully. Only a small hole, the size of a pin, should be left for the escape of air.

"The next point is to drive the air out of the canisters of fruit, to prevent its decay. In order to do this, take a broad boiler-pan, with a flat bottom, place the canisters in it and fill it with boiling water within about three-fourths of an inch of the tops of the canisters. The boiler being over a gentle fire, the water should now be made to boil. This will drive the air in each canister through the small hole left in the top, as soon as the temperature approaches 208; and in order to know precisely when it is all expelled, you must drop a few drops of water upon this hole. When the bubbles of air cease rising through these drops of water, the air is all expelled, and then you may pass a dry cloth over the hole, and let a drop of solder fall upon it. This seals the canister up hermetically, so that the fruit will remain unchanged for a couple of years or longer. The immersion of the cans in the boiling water does not impart the slightest taste of their having been cooked to the fruit.

"The canisters of fruit should be left in a cool place. When wanted for use, unsolder the tops with a hot iron, and the fresh fruit is ready,—having been perfectly preserved without the aid of sugar or brandy. Yours, W."

NEW MODE OF MAKING COFFEE.

Choose the coffee of a very nice brown color, but not black [which would denote that it was burnt, and impart a bitter flavor]; grind it at home, if possible, as you may then depend upon the quality; if ground in any quantity, keep it in a jar hermetically sealed. To make a pint, put two ounces into a stewpan, or small iron or tin saucepan, which set dry upon a moderate fire, stirring the coffee round with a wooden spoon continually, until it is quite hot through, but not in the least burnt. Should the fire be very fierce, warm it by degrees taking it off every now and then, until hot, (which would not be more than two minutes,) when pour over it a pint of boiling water, cover close, and let it stand by the side of the fire, [but not boil,] for five minutes, when strain it through a cloth, or a piece of thick gauze; rinse out the stewpan, pour the coffee [which will be quite clear] back into it, place it upon the fire, and, when nearly boiling serve with hot milk, if for breakfast, but with a drop of cold milk or cream, if for dinner.

The foregoing proportions would make coffee good enough for any person; but more or less coffee could be used if required. The cloth through which it is passed should be immediately washed and put by for the next occasion. A hundred cups of coffee could be made as here directed, in half an hour, by procuring a pan sufficiently large, and using the proper proportions of coffee and water, passing it afterwards through a large cloth or jelly-bag.—*Soyer's Modern Housewife.*

THE OHIO KETCHUP.

The Buckeyes are in the habit of making a certain kind of ketchup which I have found no where else, and have, therefore, taken the liberty to call it "The Ohio Ketchup." It is an article that should be found in every household. You must pardon me for not attempting to give you an idea of its deliciousness, because my pen cannot do justice to the subject. The season will soon be here when this "happy combination of vegetables" can very easily be made. I will therefore transcribe the receipt for the benefit of your readers: Take about three dozen full grown cucumbers, and eight white onions. Peel the cucumbers and onions, then chop them as finely as possible, then sprinkle upon them three-quarters of a pint of fine table salt; then put the whole into a sieve and let it drain for eight hours; then take a tea cup full of mustard seed, half a cup of ground black pepper, and mix these well with the cucumbers and onions; then put the whole into a stone jar and fill it up with the strongest vinegar; close it up tightly. In three days it will be fit for use, and will keep for years.

Let all your readers give the Ohio Ketchup a fair trial, and you and I will receive sixty thousand thanks for letting them into the secret of making it. —*Dollar Newspaper.*

To Use Cold Pudding.—If you have a large piece of boiled pudding left after dinner, such as plum pudding, Indian pudding, or batter pudding, and you wish to cook it next day, tie it up in a cloth, and put it into a pot of boiling water, and keep it boiling hard for half an hour or more. It will be found as good as on the first day, and perhaps rather better: and it will be far more palatable, as well as more wholesome than if sliced, fried, or boiled. Eat it with the same sauce as on the preceding day.

Custard Without Eggs.—One quart of new milk, four tablespoonfuls of flour, two of sugar. Season with nutmeg or cinnamon, and add salt to your liking. The milk should be placed over a quick fire, and when at a boiling point, the flour should be added, being previously stirred up in cold milk. As soon as thoroughly scalded, add the sugar, spices and salt. This is an excellent dish, and deservedly prized by every one who has tried it.

Keeping Fresh Beef.—Combe says the *ribs* will keep longest, or five or six days in summer, the middle of the *loin* next, the *rump* next, the *round* next, and the *brisket* the worst, which will not keep longer than three days in summer.

Blue Writing Ink.—Four ounces sulphate of iron, two and a half drachms of sulphuric acid, one ounce, of q. s. nitric acid, six ounces ferrocyanide of pot assium; water q. s. Dissolve the sulphiate of iron in one pint of water, then add the sulphuric acid, and heat the solution to boiling; then pour in the nitric acid, in small quantities at a time, continuing the boiling until the iron is peroxidized. Dissolve the ferrocyanide of potassium in two pints of water, and add the former solution, when cold, to this. Collect the precipitate that will be formed on a filter, and carefully wash it with distilled water, until the blue precipitate begins to dissolve in the water. It will now be found to be soluble in pure water, although insoluble if any other salt be present. Rub what remains, in a mortar with distilled water, until a clear solution is obtained, of the required intensity of color. A little oxalic acid is sometimes added, but this is not necessary, if the above instructions be carefully followed, as the precipitate will be perfectly and permanently soluble in pure water. —*Scientific American.*

Cure for Warts.—The following recipe, which I have often used with safety and efficacy, for taking warts (or, as they are called here, ingleberries) off cows, might be of great use to many farmers:—

With a sharp knife, scrape a very small portion of the skin of the wart, so as not to make it bleed profusely, but that the blood or water may appear oozing through the skin; then rub a little arsenic on that part; in a short time it will blacken, and in eight or ten days it will drop off.—*Hugh Ochilfree, Ratsfriland.*

Sarsaparilla Syrup.—Purchase of a druggist of known honesty, 15 ounces of Para Sarsaparilla; split all the stocks in two lengthwise, and cut in short pieces, Soak it in a gallon of pure water for twenty-four hours, then boil it down to two quarts; strain and add while boiling, 15 ounces of white sugar; thicken all by a little additional boiling, precisely as you make the syrup of preserves. Here you have two quarts of pure syrup for eighty cents, The dose is from a teaspoonful to a wine glassful, according to age. three times a day; but it would do no harm if taken by the tumblerful; it is not hurtful in any dose. If you make it, you are certain that you get the genuine article—which is very doubtful if you buy it.

Paint and Sand.—Wheeler's *durable paint* for outside work is made as follows:—Take 50 pounds of best white lead, 10 quarts linseed oil; ½ lb. dryers; 50 lbs. finely sifted clean white sand; 2 lbs. raw umber. Thoroughly mix and dilute the whole with the oil, adding a very little (say half) a pint of turpentine. A *wire* brush is used, which does not cut through with the sand.—*Albany Cult.*

Substitute Paint Varnish.—Recipe for a composition to economize paint: To one pound of gum shellac add four ounces of borax and two quarts of water. Boil till dissolved. These proportions may be varied according to the quality of the materials used. After the paint is prepared for use, add nearly an equal quantity of the above, and stir until it unites. The paint will then be thicker than before, and must be reduced with oil or spirits of turpentine. The paint will now cover twice the surface it would at first.

How to Preserve Health.—Medicine will never remedy bad habits. It is utterly futile to think of living in gluttony, intemperance, and every excess, and keeping the body in health by medicine. Indulgence of the appetite, indiscriminate dosing and drugging, have ruined the health and destroyed the lives of more persons than famine or pestilence. If you will take advice, you will become regular in your habits, eat and drink only wholesome things, sleep on a mattress, and retire and rise very regularly. Make a free use of water to purify the skin, and when sick take counsel of the best physician you know, and follow nature.

Golden Rules of Life.—All the air and the exercise in the universe, and the most generous and liberal table, but poorly suffice to maintain human stamina if we neglect other co-operatives —namely the obedience to the laws of abstinence, and those of ordinary gratification. We rise with a headache, and we set about puzzling ourselves to know the cause. We then recollect that we had a hard day's fag, or that we feasted over bounteously, or that we stayed up very late; at all events we incline to find out the fault, and then we call ourselves fools for falling into it. Now, this is an occurrence happening almost every day; and these are the points that run away with the best portion of our life, before we find out what is for good or evil. Let any single individual review his past life: how instantaneously the blush will cover his cheek, when he thinks of the egregious errors he has unknowingly committed—say unknowingly, because it never occurred to him that they were errors until the effects followed that betrayed the cause. All our sickness and ailments, and a brief life, mainly depend upon ourselves. There are thousands who practice errors day after day, and whose pervading thought is, that every thing which is agreeable and pleasing cannot be hurtful. The slothful man loves his bed; the toper his drink, because it throws him into an exhilarative and exquisite mood; the gourmand makes his stomach his god; and the sensualists thinks his delights imperishable. So we go on, and at last we stumble and break down. We then begin to reflect, and the truth stares us in the face how much we are to blame.

Advice as to Colds.—Young ladies should take care not to sit near the piano; for it is a well-known fact that that instrument has caused more dreadful colds than all the thin shoes and draughts in the world. The most beautiful creatures, who were perfectly well and laughing the minute before, have no sooner approached a grand Broadwood, than they have been suddenly seized with a sore throat, and have lost in a minute the use of their voice. The complaint is less taking as the young lady grows older, and rarely has any effect where there are several sisters.

than when eating their food,—as exemplified by the growl of a dog, and the scowl of a horse.—*Stephens Farmer's Guide.*

OATS.

Oats are seldom given to animals as food in the form of meal; but horses are greatly supported, during most part of the year, on the grain of oats, while the meal is used by the labouring people of the farm. The quantity of nutritive matter afforded by an acre of land, from a crop of oats producing 50 bushels per acre, is as follows:—50 bushels, weighing 2100 lbs., give 420 lbs. of husk or woody fibre; 1050 lbs. of starch; from 29 lbs. to 400 lbs. of gluten, &c.; from 75 lbs. to 150 lbs. of oil or fat, and 80 lbs. of saline matter.

The composition of the grain of the oat is as follows:—

	Hopetoun oats. Ayrshire. Fromberg.	Potato oats. Northumberland. Norton.
Starch,	6·480	65·60
Sugar,	2·58	0·80
Gum,	2·41	2·28
Oil,	6·97	7·38
Casein (avenine)	16·26	16·29
Albumen,	1·29	2·17
Gluten,	1·46	1·45
Epedermis,	2·39	2·28
Alkaline salts, and loss,	1·84	1·75
	100·00	100·00

"The quantities of *oil* given above," Mr. Norton observes, "are large, but I think correct. The earlier analyses of oats give from three to four-tenths of a per cent of oil. Both Boussingault and Johnston, however, have recently found from 6 to 8 per cent. This oil is of a beautiful pale yellow colour, and its smell may be perceived on heating oatmeal cakes. The fattening qualities of the oat must be very great. The maize or Indian corn is celebrated for fattening animals, and Dumas gives only 9 per cent as its maximum of fatty matters. Boussingault gives 7 per cent as the average; while Liebeg has denied that it contains more than 5 per cent. If we take 7 per cent as the average, the meal of the oat, so far as the oil is concerned, should nearly equal that of the Indian corn."

The per-centage of ash in the oat I have already given, (472,) and the composition of that ash is as follows:—

	Potato oats. Northumberland. Norton.	
Potash, Soda,	31·56	16·27
Lime,	5·32	10·41
Magnesia,	8·69	9·98
Peroxide of iron,	0.88	5·08
Peroxide of manganese	....	1·25
Sulphuric acid,	....	....
Phosphoric acid,	49·19	46·26
Chloride of sodium (common salt),	0·35	....
Chloride of potassium,	....	5·32
Soluble silica,	0·89	....
Insoluble silica,	0·98	3·70
	97·86	98·27

"In every part of the plant but the grain," observes Mr. Norton, "we have found sulphuric acid in the watery solution of the ash; in the grain it seems to give way to phosphoric acid. In the only instance in which sulphuric acid was present, the grain was from a poor crop, grown on an exhausted soil; and it is possible that the sulphuric acid may have been present only because the crop found it impossible to obtain a full supply of phosphoric acid. The large quantity of phosphoric acid is remarkable; in nearly every case it constitutes almost or quite one half of the ash. It is easy, therefore, to see how the addition of bones or guano should benefit the oat crop. Silica is very small in quantity in the grain, compared with that in other parts of the plant."—*Stephens Farmer's Guide.*

AMOUNT OF FOOD CONSUMED BY CATTLE.

It is supposed that an ox, which attains the weight of 70 stones imperial at the end of the season, consumes in fattening a double-horse load of turnips per week; and, as carts are usually loaded at field-work in winter, the weight of a load may be estimated at about 15 cwt.; so that the ox will consume about $2\frac{1}{6}$ cwt., or 16 stones 2 lbs a day, or 5 stones 5 lbs. at each of three meals, and about $19\frac{1}{2}$ tons during the season of 26 weeks. The calves may consume $\frac{1}{2}$, or 8 stones, and the two-year olds $\frac{3}{4}$, or 12 stones a day; cows receiving one-third of the oxen, 5 stones 5 lbs. a day. Each scullful contains about $37\frac{1}{2}$ lbs. These comparative quantities are given from no authenticated data, for I believe no comparative trials, with different ages of cattle, have ever been made, but merely from what people imagine to be near the truth; and such an estimate should be made at the beginning of every season, that you may know whether there are turnips enough to serve the stock. It was correctly ascertained by Mr. Stephenson, Whitelaw, East Lothian, in a careful experiment of feeding 18 oxen of 42 stones, that they consumed 10 stones, 2 lb. on an average each of turnips daily; and Mr. Boswell Irvine of Kingcausie, found that oxen of 43 stones consumed only 9 stones of turnips each daily. This discrepancy between the two statements might be explained, perhaps, if we knew every particular of the treatment in the two cases. Taking $9\frac{1}{2}$ stones as the average quantity of turnips consumed every day by oxen of 42 stones, and taking it for granted that oxen consume food nearly in proportion to their weight, the result will be very nearly what is stated above by guess, nearly 16 stones per day, by cattle of 70 stones.—*Stephens Farmer's Guide.*

MILLET.—A word or so upon the use of *millet*. It is excellent food for poultry, fed in the grain—young chickens are particularly fond of it, while it agrees with them. When ground into meal, or chop, it is as good as rye for all the purposes of mash feeding; horses and all kind of cattle are fond of, and thrive upon it; when made into slops for hogs and milch cows, it is found not only grateful to those animals, but the first will thrive and grow fat upon it, while the last will be assisted in the secretion and quantity of their milk.

Horticulture.

FRUIT AND ITS PROSPECTS.

Contrary to all appearances and anticipations, the fruit crop is a failure in the whole Northern and Eastern States. The period of blossoming promised abundance, but an unpleasant and cold east wind followed—the stamens failed to develope the pollen—impregnation did not take place—and nearly the whole proved an abortion. This cause of failure only applies to the apple. The peach crop is shortened from a cause, called the *Curl*, which showed itself three or four years ago, and has been gaining until this year it has become an alarming disease to the lovers and growers of this delicious fruit.

At the period of blossoming, when the leave has nearly attained its full size, the fleshy covering commences enlarging without a corresponding growth of the frame work or centre stems and ribs; the result is a folding and corrugation of the web or covering until it is twice as large as it should be, and very much thickened. Circulation and elimination ceases, the whole leaf mildews and falls off, and if there is no dormant buds on the limb or at the terminal point, it gums and perishes, and in most cases the peach in its incipient state is lost before the new leaf is able to carry on the vital process.

Many persons are disposed to attribute this disease to insect depredation, as they do every disturbance of the functions of all fruit and vegetable productions; yet in all cases the insects will be found to be the natural enemies of the plant, or the effect and not the cause.

We understand the *Curl* has more or less affected the peach over the whole continent, but less at the South and West.—*Rural New Yorker.*

LOW HEADS FOR FRUIT TREES.

Some writer, no matter who, gives the following recommendations for the shape of fruit trees. They are commended to all who raise such trees.

It is said to be much better to grow fruit trees with their heads and branches near the ground, than to have them branching over head, for various reasons.

1st. The sun, which is, perhaps, in our hot and dry summers, the cause of more disease and destruction in fruit trees than all other diseases together, is kept from almost literally scalding the sap, as it does in long, naked trunks and limbs. The limbs and leaves of a tree should always effectually shade the trunk and keep it cool. The leaves only should have plenty of sun and light: they can bear and profit by it. If trees were suffered to branch out low, say one or two feet from the ground, we should hear much less of "fire blight," "frozen sap blight," black spots, and the like.

2nd. The ground is looser, moister, and cooler under a low branching tree than under a high one. Grass and weeds do not grow a hundredth part so rank and readily, and mulching becomes unnecessary.

3rd. The wind has not half the power to rack, and twist, and break the tree and shake off the fruit; a matter of no inconsiderable consequence.

4th. The trees will be much longer lived, and more prolific, beautiful, and profitable.

5th. The trees are more easily rid of destructive insects, the fruit is much less damaged by falling, and the facilities for gathering it are much greater; there is less danger of climbing, and less of breaking limbs.

6th. The trees require less pruning, scraping, and washing, and the roots are protected from the plough, which is too often made to tear and mutilate them.

These seem to be indisputable facts, sufficient to silence all objections. An apple or cherry tree is nearly twice as valuable for shooting out low, near the ground, especially on the south-west sides.

SAP OF PLANTS.

Knight teaches that the sap of plants *ascends* through the whitewood, and *descends* down the bark, depositing the matter of the new wood in its descent, but without its becoming changed into it. That the matter absorbed from the soil and air is converted into the true sap or blood of the plant *wholly in the leaves*, from which it is discharged into the bark, and that such portions of it as are not expended in the generation of new wood and bark, join, during the Spring and Autumu, the ascending current in the wood, into which it passes by the medullary process. As the Autumn approaches, however, and the ascending sap is no longer expended in generating new leaves and blossoms, or young shoots, that fluid concentrates in a concrete state in the sap wood of the tree, as in the tuber of the potato, and the bulb of the tulip, and joints of the grasses, whence it is washed out in the Spring, to form a new layer of bark or wood, to form leaves, and feed the blossoms and fruit.

STRAWBERRIES. — Cutting of the runners of Strawberry plants during summer has been pretty generally recommended by gardening authors. This, I believe to be an error in practice, and should therefore be discontinued and that they be not removed until they have completely, struck root, or even afterwards. If cut off too soon, the plants, from causes only to be understood by a thorough knowledge of vegetable physiology, will continue to send out their stolens or runners, to the great detriment of the parent plant; whereas, if left on until that they have become well rooted and established, or if left on (if not wanted for new plantations) till autumn, the old plants instead of being weakened as heretofore often supposed, will be materially strengthened and improved.—*Fragaria.*

TREES and vines which are kept the cleanest, bear the best; like the human body, the pores of their skin become clogged with dirt, and retain gases which should escape. Trees, the bark of which has been scraped and scrubbed, become more thriving and more vigorous.

the ignorance of many painters in compounding colors. They try for drab, and get a brown; they attempt a straw color and get a downright yellow.

A series of pretty colors for houses can be made by putting into white lead a small quantity of umber, ground in oil. By varying the quantity, any number of shades of drab may be obtained. In compounding this, care is required not to put in too much of the umber. The way is to use a little at a time, till the required shade is formed. With raw umber, a cold drab is obtained; with burnt umber, a warm one may be had. A straw color is formed by adding a little chrome yellow to white lead, and the same rule is to be observed.—*Praire Farmer.*

Salting Asparagus Beds.—My beds are situated on limestone land, but the soil is deep and rich. The beds have never been raised more than eighteen inches or two feet from the level (not being considered necessary.) They are at least twenty or twenty-one years old, and every year they have been gradually declining, but whether from bad management or age I cannot determine. About the end of January or beginning of February, the weather being tolerably mild for the season, I raked the soil off the beds with a small hand-rake until I had sufficiently bared them without hurting the plants. I then laid one and a half inch or two inches of rich stable manure over them, and afterwards completed the beds with soil from the trenches which had been thrown back. Next day I watered with salt and water (refuse salt, 2d. per stone) the weather being mild and dry, and in wet weather I sprinkled them over with dry refuse salt, which the rain most effectually washed in. The effect was more expeditious than I had anticipated. About the end of March I cut a tolerably good dish, very much larger and more delicate than I have had during the last two years, and on Tuesday, June 4, I had cut my eighth dish. They now seem disposed to run to seed, so I have ceased cutting. The beds I have are only seventeen feet long by four feet broad, but they occupy so favourable a situation that they should be more productive than they are (with proper management).—*John T. Y., Parkhead.*

Notes on Hybridising, and Miscellaneous Agricultural Memoranda.—By hybridising we anticipate a change in the whole face of cultivated plants; probably a few years may thus produce new races of trees, esculents, corn, and forage plan is of as much (if not more) importance as any already known. The effect is produced by applying the pollen of one flower to the stigma of another. The Dean of Manchester, the most eminent man in his way, always endeavours to force the female parent, so as to be forwarder than others of the same kind. Potato blossoms should be taken off. Turnip seed should be drilled with about 12 times its bulk of powdered charcoal. Chemistry will probably do more for agriculture than it has done for other arts and manufactures. Sulphate of lime is frequently the cause of hardness in water. Spade culture should be adopted. One horse consumes what would supply a family of seven.—Y. F. A.—*The Irish Farmers' Gazette.*

SCIENTIFIC MEMORANDA.

It has long been alledged that the aurora borealis has the effect of producing a certain direction of wind, and colored aurora borealis is always indicative of a change of existing weather.

The mean annual fall of rain on the surface of the globe has been taken at 34 inches, which, taking the area of its surface, 196,815,658 square miles, would amount (at 1,000 ozs to the cubic foot) to 431,033,808,959,644¼ tons per annum.

It is a fact undeniably proved that if sheep are allowed free access to salt, they will never be subject to the disease called the "rot."

Wooden posts or stakes driven under salt vats, owing to the preserving quality of the salt, are practically indestructible. It would be very easy to adapt this hint to the preservation of fence, garden posts, &c., as they do in Syracuse.

The elastic force of steam is the moving agent of the machinery attached to an engine, and therefore to keep the velocity constant, the supply of steam must be regulated to the resistance to be overcome.

Twenty-seven inches of snow give three inches of water when melted, and the water thus obtained is found to contain ammonia which is the cause of its great softness.

A large species of the star-fish possesses the power of breaking itself into fragments under the influence of terror, rage, or despair.

When we look at the moon through a telescope which magnifies 200 times, we behold the objects on its lunar surface in the same manner as if we were standing at a point 238,800 miles from the earth in the direction of the moon, or only twelve hundred miles from that orb, reckoning its distance to be 240,000 miles.

A cement composed of 4 parts of pure chalk and 5½ parts of fresh blue alluvial clay, will be found cheaper than any other as an hydraulic mortar.

A vessel moving through the water communicates a motion to the same, and this quantity of motion is equal to that which is lost by the moving vessel.

The World.—Many an unwise parent labours hard and lives sparingly all his life for the purpose of leaving enough to give his children a start in the world, as it is called. Setting a young man afloat by money left him by his relatives, is like tying bladders under the arms of one who cannot swim: ten chances to one he will lose his bladders, and go to the bottom. Teach him to swim, and he will never need the bladders. Give your child a sound education, and you have done enough for him. See to it that his morals are pure, his mind cultivated, and his whole nature made subservient to the laws which govern man, and you have given what will be of more value than the wealth of the Indies.

A CHAPTER ON BREAD-MAKING.

Mr. Moor,—*Dear Sir:* As your valuable paper has contained some articles on making bread, I thought I would send you a recipe, which, if followed, will make as good bread as I want. But first let me tell your good readers how to make the *right* kind of yeast. This is the way my wife has followed for a good many years, and at present makes quite a "commercial operation" of it by supplying the destitute.

First she takes a *two* quart pan full o f hops to about *three* quarts of water, and boils them, until the strength of the hops is fairly extracted; then strains out the water and adds sufficient flour to make a thick batter; then sets it by to cool. When nearly cold, add a sufficient quantity of yeast, (about 3 yeast cakes, if on hand, or soft yeast will do)—then set it by for the night; in the morning this will be light. You then take Indian meal and make a large dish-kettle full of what we call "hasty pudding," and when this is *nearly cool*, put the yeast as prepared into it, and stir it well. Set it by until this foments well, then stir in meal until it becomes thick enough to roll out like "short-cake dough," about $\frac{1}{8}$ of an inch thick; then with a biscuit cutter you cut them out and spread on a smooth board, and dry them *in the shade*, turning them over occasionally. When fairly dry, put into a bag, and hang them up for use. I have known this kind of yeast perfectly good when six months old, and my wife has the credit of "beating the beater" in making good bread.

And now for the bread making. For a batch of three loaves, take about ten common sized potatoes; peal (or pare) them, cut them into slices, and boil them well; pour off the water, and then mash them fine with a fork. Then with cold water and flour you make a batter; this will cool it sufficient to add the yeast, (which should be one of the above cakes, broke up fine, and dissolved in a little cold water.) When it is well stirred together, set it by over night; in the morning, take your flour and sift it, (this gets out all lumps') and then pour in your batter, (*if light enough,*) and then knead up your dough, being careful to work the flour in slow, (it will be the better for that.) Make up your loaves, and place them in pans for baking; in a short time they will be light enough for the oven. The weather has a little to do with it; if cold, then keep it in a warm place.

Bread got up after the above rule, in my house, has called out the praises of a great many as the best bread they ever saw, and many have been instructed accordingly.

Wife says, I ought to add—put in enough salt into the potatoes to make them palatable, and this will salt the bread sufficiently.

Yours, E. H.

—*Rural New Yorker.*

THE LADY'S HORSE.

A late number of Mr. Skinner's "Plough, Loom, and Anvil," contains an instructive article on that noble animal, the Horse, from which we make the following extract, for the benefit of our lady readers:—

The lady's horse is, after all, the most difficult to obtain, because he ought to approach very near to perfection. His paces, mouth, and temper should each be proportioned to the power and capability of his rider; and he should be proof against alarm, from either noises or sights, which otherwise might cause him to run away. This description of horse should likewise be well-bred, as in that case his action will be easier and his appearance and carriage more in character with the generally elegant appearance of his rider. His pace should be the canter; the trot causes an ungraceful movement in the person of a woman, to enable her to rise bitted horse is more safe, because his haunches are more under him in that pace than they can be in the trot. A good, bold walk, however, with the head in proper place, is essential to a horse that has to carry a woman; and his action should be very true, that is, he should not "dish," or throw his legs outward, as the term is, in any of his paces, or he will cover the lower garments of his rider with mud, when the roads are wet and dirty. To provide against the latter inconvenience, however, all horses intended for this purpose should not be much under fifteen hands and a half in height, which size corresponds with the lengthened drapery of a lady's riding costume. As a preventive against accidents, ladies' horses, however well broken and bitted, should not be too highly fed; and, if at all above themselves, should be ridden by a careful servant, with good use of his hands, before ladies mount them. It is however, an acknowledged fact, that horses go more quietly under women than they do under men, which is accounted for by the lightness of their hand, and the backward position of the body in the saddle. We have, in fact, known several instances of horses being very hard pullers with men, standing up in their stirrups, and, consequently, inclining their bodies forward, but going perfectly temperate and at their ease under women.

An Arab Game.—The Arabs are far more amusable, far more jovial and open-hearted. They have their coffee-houses every night, and their religious festivities periodically; they play all sorts of complicated games, resembling draughts and chess, and find means ingeniously to vary their sports. If they compromise their dignity, they succeed in whiling away their leisure time far more successfully than the pride-stuffed Levantine. One of their amusements—called the game of plaff—is worth mentioning, especially as it is not only indulged in by the vulgar, but formed the chief delight of the venerable Moharrem Bey himself. Two men, often with respectable grey beards, sit on a carpet at a little distance one from the other. All Easterns are usually dry smokers; but on this occasion they manage to foment a plentiful supply of saliva, and the game simply consists in a series of attempts on the part of the two opponents to spit on the tips of each other's noses. At first, this cleanly interchange of saliva goes on slowly and deliberately—Socrates

PROF. ESPY'S THEORY OF STORMS.

As some interest has been awakened here of late on meteorology, we propose to present our readers a brief view of the "*theory* of storms," called the "Espy theory"—so designated to distinguish it from another and kindred theory, named the "Redfield theory."

Mr. Espy, in his theory, professes to explain all the seven phenomena of rain, hail, snow, waterspouts, winds and barometric fluctuations. The following is a brief synopsis of his theory.

"1. Atmospheric air is subject to expansion, —either by heat or by a diminution of pressure.

2. Aqueous vapor is specifically lighter than atmospheric air,—its weight, under given circumstances, being only about five-eighths of that of air.

3. When a portion of air becomes lighter than the surrounding air, from expansion by heat, from being more lightly charged with vapor, or from any other cause, it ascends.

4. Air, in ascending from a lower to a higher region, is subject to diminished pressure, and consequently to expansion.

5. The atmosphere is capable of containing, and does always contain a certain quantity of water in a state of transparent vapor.

6. This capacity of the atmosphere for containing water increases much more rapidly than the temperature.

7. The quantity of water actually in solution, varies greatly, at different times and places, independently of the temperature; the air, at a given temperature, sometimes being filled nearly or quite to the extent of its capacity, while at others, it falls far short of it.

8. If from any cause, the temperature of a portion of air, containing a given quantity of vapor, be reduced to a certain point, that is, at all below the dew-point, it must deposite a portion or the water.

9. Expansion, arising from diminished pressure, is attended by diminished temperature.—The actual diminution of temperature, on this account, in ascending from the surface of the earth, is about a degree and a fourth, for every hundred yards; and consequently air, highly charged with vapor, that is, with a high dew-point, would not have to ascend very high before condensation must commence.

10. The condensation of vapor is attended with the disengagement of a very large quantity—more than a thousand degrees—of latent caloric. In other words, sufficient caloric is set at liberty, by the condensation of a given quantity of vapor, to raise the temperature of a hundred times that quantity of matter (of the same specific caloric) ten degrees."

Heat is the life giving element in this theory, as of every other storm theory.

Cork, if sunk two hundred feet in the ocean, will not rise, on account of the pressure of the water.

A Wonder of Art.—One of the most extraordinary wonders of modern times is "The Britannia Bridge," over the Menai Straits, the work of that celebrated engineer, Mr. Robert Stephenson. It consists of two immense wrought iron arcades, tunnels or tubes, each more than a quarter of a mile in length, placed side by side, through which the up and down trains of railroad cars respectively pass. The ends of these tubes rest on abutments, the intermediate portion being supported across the straights by three massive and lofty stone towers. The centre tower stands on a rock, which is covered by the tide at highwater. The side towers stand on the opposite shores, each at a distance of 450 feet from the centre tower. The abutments are situated inland, at a distance of 220 feet from the side towers. The bridge is divided into four spans, viz., the two small spans at each end, which are over the land, and are each 230 feet wide, and the two principal spans, which are over the water, are each 460 feet wide. The length of one of the large tubes is 472 feet. The height of the tubes is not the same at all parts of their length. It is the greatest in the centre, where it is 30 feet outside, and diminishes gradually towards the ends, at which it is only 22 feet 9 inches. The top forms a regular arch, and the bottom is quite flat and horizontal. The internal width from side to side is fourteen feet, though the clear space for the passage of the trains is but 13 feet 5 inches. The weight of the wrought iron in one of the tubes—and this will afford the reader an adequate idea of the structure—is about 1,600 tons. The weight of the whole eight tubes amounts to nearly 10,000 tons. Each tube was built on the shore, and had to be transported a considerable distance on large flat-bottomed, close barges, called pontoons. The middle tower is 62 feet 5 inches at the base, and its total height from the bottom of the foundations is nearly 230 feet. It contains lime-stone and sandstone to the extent and weight of 20,000 tons, and there are 387 tons of cast iron built into it in the shape of beams and girders. There are two consecutive tubes forming the bridge, each upwards of a quarter of a mile long, and each weighing 500 tons. The entire length of the bridge at rail level is 1841 feet. It is stated that a very remarkable phenomenon is connected with the mass of iron in the bridge, caused by the change of temperature in the weather, which affects it like a thermometer. Alternate sun-shine and showers of rain cause the tubes to expand and contract.

The Building for the Exhibition of 1851.—The long deliberations as to the building to be erected for the exhibition of 1851, have been terminated by a decision in favor of Mr. Paxton's design and estimate. Mr. Paxton suggests a building chiefly of glass—in fact, a huge but elegant glass house. The great feature in its erection is, that no stone, brick, or mortar, will be necessary.—All the roofing and upright sashes will be made by machinery, fitted together, and glazed with rapidity, most of them being finished

previous to being taken to the place, so that little else will be required on the spot than to fit the finished materials together. The whole of the structure will be supported on cast iron columns, and the extensive roof will be sustained without the necessity for interior walls for this purpose. If removed after the exhibition, the materials may be sold far more advantageously than a structure filled in wiih bricks and mortar, and some of the materials would bring in full half of the original outlay. Complete ventilation has been provided by filling in every third upright compartment with luffer boarding, which would be made to open and shut by machinery; the whole of the basement will be filled in after the same manner. The current of air may be modified by the use of course open canvas, which by being kept wet in hot weather, will render the interior of the building much cooler than the external atmosphere. In order to subdue the intense light in a building covered with glass, it is proposed, to cover all the south side of the upright parts, together with the whole of the roofs outside, with calico or canvass, tacked on the ridge rafters of the latter. This will allow a current of air to pass in the valleys under the calico, which will, if required with the ventilators, keep the air of the house cooler than the external atmosphere. To give the roof a light and graceful appearance, it is to be on the ridge and furrow principle, and glazed with sheet glass. The ridge and the valley rafters will be continued in uninterrupted lines the whole length of the structure, and be supported by cast iron beams. These beams will have a hollow gutter formed in them to receive the rain water from the wooden valley rafters which will be thence conveyed through the hollow columns to the drains. These drains will be formed of ample dimensions under the whole of the pathways throughout. The floors of the pathways to be laid with trellis-boards three-eigths of an inch apart on sleeper joists. This kind of flooring is both economical and can always be kept clean, dry, and pleasant to walk upon. The gallery floors are to be close boarded. No timber trees need be cut down, as the glass may fit up to the boles of the trees, leaving the lower branches under the glass during the exhibition; but Mr. Paxton does not recommend this course as, for the sum of £250 he would engage to remove and replace every living tree on the ground, except the large old elms opposite to the Prince's gate. Only a few years ago the erection of such a building as the one contemplated would have involved a fearful amount of expense; but the rapid advance made in this country during the last forty years, both in the scientific construction of such buildings and the cheap manufacture of glass, iron, &c., together with the amazing facilities in the preparation of sash-bars and other wood-work render an erection of this description, in point of expense, quite on a level with those constructed of more substantial materials.

New Rifle.—Mr. P. W. Porter, of Memphis, has made a self-loading rifle. It has a revolving wheel perforated by forty chambers. The discharge of one chamber loads the adjoining one. This is an improvement on Colt's revolver, and will be of great benefit to the Californian adventurers.

NEW LIFE-PRESERVING MATTRESSES.

A series of experiments have been made in the river Clyde, Scotland, with mattresses which have been recently patented in that country by a Mr. R. W. Laurie, of Glasgow, as "Life Preservers." They are made of water-proof materials, not on the principle of air-tight tubes or cushions, which are liable to be destroyed by the smallest puncture, but on the principle of air-cushions and buoyant materials combined, for although a rent or puncture should be made, the mattress will still float. They are made of a series of tubes of vulcanized India rubber, stuffed with granulated cork, to prevent them from collapsing, and from external injury. The way in which the mattresses were made was to have three or four water-proof tubes filled with air and partially stuffed with small pieces of cork. These air pipes are connected together, and stuffed around the sides and over the top and bottom with layers of cotton wool, (which is almost water-proof), and over the whole is a covering of vulcanized India rubber, gutta percha, or any water-proof material. On the sides are attached strong cords to hold on. The suface is quite smooth, and it is as easy to recline on one of them as on a hair mattress. The invention is applicable to footstools, pillows, and other kinds of furniture belonging to steamboats or sailing vessels. We commend this invention to our steamboat and ship companies. Such kinds of life-preserving apparatus should be used on all sailing vessels. Captain Seely of this city has an apparatus of his own invention similar to this, which we have seen tested as a life-preserving raft, and boat, with perfect success.—*Scientific Am.*

COLOR OF DWELLINGS.

We can give no minute directions for painting—not having learned the art of a painter; but there are a few observations we have made which will be worth noticing. And first, the color of the building should be regulated by its situation. A tall house standing plump with the street will not bear the same hue with a low neat cottage, embowered in trees and vines. The first will bear a dark color. Its prominence thrusts it out on the sight, and if it be of a bright glaring hue, it will blind the eyes of every beholder. On the other hand, the half hidden cottage, painted of a dark brown, reminds one only of a prison or barn; whereas it should wear an aspect of light and cheerfulness. If deeply embowered, an absolute white is best. If less, the white may be softened or neutralized by a mixture with it of some other color. A friend of ours had a white house, situated as above described: but, for the sake of prevailing fashion, had it painted a dismal brown, to his utter chagrin then and ever since.

The chief difficulty in getting a neutral color is

never measured the leap of a flea with more seriousness—but presently one receives a dab in the eye, another in the mouth. They begin to grow hot and angry. "I hit your nose," cries one. "No, it was my cheek!" replied the otther.—They draw a little nearer, in order to ascertain the truth by feeling; spit, spit, they still go, like two vicious old cats; their palates grow dry; their throats beeome parched; but the contest continues, and they exhaust themselves in making spittoons of each others faces, and beards. Hamlet and Laertes were not more eager and desperate. "A hit, a very palpable hit!" they exclaim, as they hawk up their last supply of ammunition. Each denies the truth; they mutually proceed to a verification, and the game of plaff often ends in a regular match of nose-pulling.—*Two Years' Residence in a Levantine Family.*

THE ELEPHANT AND THE CAMEL.

Elephants have the bitterest enmity to camels. When the camel scents the elephant it stops still, trembles in all its limbs, and utters an uninterrupted cry of terror and affright. No persuasion, no blows can induce it to rise: it moves its head backwards and forwards, and its whole frame is shaken with mortal anguish. The elephant on the contrary as soon as he perceives the camel elevates his trunk, stamps with his feet, and with his trunk thrown backwards, snoring with a noise like the sound of a trumpet, he rushes towards the camel, which with its neck outstretched and utterly defenseless awaits, with the most patient resignation, the approach of its enemy. The elephant, with its enormous shapeless limbs, tramples on the unfortunate animal in such a manner that in a few minutes it is scattered around in small fragments.

A STRIKING THOUGHT.

The death of an old man's wife, says Lamartine, is like cutting down an ancient oak that has long shaded the family mansion. Henceforth the glare of the world, with its cares and vicissitudes, falls upon the old widower's heart, and there is nothing to break their force, or shield him from the full weight of misfortune. It is as if his right hand was withered—as if one wing of the eagle was broken, and every movement that he made brought him to the ground. His eyes are dim and glassy, and when the film of death falls over him, he misses the accustomed tones which might have soothed his passage to the grave.

THE HOME OE THE DEAD.

Public taste, the requirements of enlightened opinion, the dictates of the holiest human affection, imperatively require, for a cultivated and socially progressive community, places of sepulture that shall not be repulsive charnel houses. The grave should be made beautiful and holy with pleasant paths around it, and sweet flowers upon it, with ever-blooming verdure around, and the eternal marble above, to consecrate it as a sacred place apart. Such care for the rest of the dead tells of yearnings for immortality—of aspirations above the clod of the valley, that would simulate here on earth the paradisial bloom of the spirit-land. It indicates that higher civilization of the soul, which is not the mere result of scientific culture and legal restrainings—it elevates our physical being above brute existence, which perishes and passes utterly away.

DEATH-BED SUPERSTITIONS.—The practice of opening doors and boxes when a person dies is founded on the idea that the minister of purgatorial pains took the soul as it escaped from the body, and flattening it against some closed door (which alone would serve the purpose,) crammed it into the hinges and hinge openings; thus the soul in torment was likely to be miserably pinched, and squeezed by the movement on casual occasion of such door or lid. An open or swinging door frustrated this, and the fiends had to try some other locality. The friends of the departed were at least assured that they were not made the unconscious instruments of torturing the departed in their daily occupations. The superstition prevails in the north as well as in the west of England; and a similar one exists in the south of Spain, where I have seen it practiced. Among the Jews at Gibraltar there is also a strange custom when a death occurs in a house; and this consists in pouring away all the water contained in any vessel, the superstition being that the angel of death may have washed his sword therein.

PHYSICAL INFLUENCE OF HABIT.

Proficiency in all handicrafts is the legitimate result of the physical influence of habit. The blacksmith makes a nail, for instance, well and quickly only after many and often repeated trials. The hand and eye must be educated—habituated to the work, and then they cannot fail. It is so with all mechanical professions. The artisan by a long apprenticeship becomes acquainted with the use of the proper tools and at last the master of his trade,—and the habits then acquired, whatever may be his after situation, will influence his whole life.

SCRAPS TO THE CURIOUS.

IF a tallow candle be placed in a gun and shot at a door, it will go through without sustaining any injury; and if a musket ball be fired into water, it will not only rebound, but be flattened, as if fired against a solid substance.

A musket ball may be fired through a pane of glass, making the hole the size of the ball without cracking the glass; if the glass be suspended by a thread it will make no difference, and the thread will not even vibrate.

In the arctic regions when the thermometer is below zero, persons can converse more than a mile distant. Dr. Jamieson asserts that he heard every word of a sermon at the distance of two miles. We ourselves heard across a water a mile wide, on a still day, with perfect distinctness, every word of a mother talking to her child.

IT is a sign of wisdom to be willing to receive instruction: the most intelligent sometimes stand in need of it.

Editor's Notices, &c.

NOTICE.—We regret that in consequence of an accident to our press, this number of the *Agriculturist* has been delayed to the latter end of the month. From the size and shape of the sheet there are but two or three presses in the city that will work it. These are so constantly employed that we could get the use of only one of them, and that during the night. We have always had great difficulty in getting the *Agriculturist* printed. The Edition being large it takes a long time to work it off on a hand press. We are glad to announce, however, that one of our printing establishments is importing a power press which will enable us to throw off our edition in a couple of days. We shall then endeavour to have the *Agriculturist* in the post office by the 5th of each month, with as much regularity as other publications of small circulation. The next number with a full account of the Niagara Fair, official copy of the Prize List, &c., will be published and mailed by the 10th of October at the latest.

THE PROVINCIAL FAIR.—In consequence of the circumstance above mentioned, one side of our paper had not gone to press until we returned from the Niagara Fair, we have no room to give any account of it in this place, but we may mention that it was in every respect a most successful exhibition. The weather, except a part of one day, was fine, and the number of visitors greater than on any previous occasion. As many as 30,000 visited the grounds during the Fair.—The funds of the association will be ample to meet all demands. The next Fair is appointed to be held at Brockville. We trust the Farmers of that vicinity will not allow it to be said of the next show, that there is a falling off. We can assure them it will be necessary to bring out their *best* productions. Our October number will be out in a few days with the Prize list, &c., &c

THE EASTERN PROVINCES.—We beg to inform our subscribers in Nova Scotia and New Brunswick, that in remitting for the *Agriculturist* it would save us much trouble, besides a loss of at least ten per cent, if they would send us notes of the Bank of British North America, or of Quebec, or Montreal Banks, even American money is more available than the bills of the local banks.

TO SOCIETIES.—It would greatly oblige us if those Societies in arrear for the *Agriculturist*, would remit us during next month. The printer and paper maker will not wait. The Societies have received, or might have received, their share of the annual grant and they will consequently be able to spare us the small share of their funds to which we are entitled.

BOARD OF AGRICULTURE.—The reader will find in this number some remarks in reference to the new Law. We may mention here, for fear it should be overlooked, that the first 12 sections of the Bill as published in the 6th number of the *Agriculturist* have become Law, a few verbal alterations excepted. The County Societies should not fail to elect the seven members at their next annual meeting.

SALE OF SHORT HORNS.—The stock of Mr. Morris, an American gentleman of wealth and enterprise, is, we are informed, of a very superior kind. He sends us the following notice in order that Canadian breeders who may wish to improve their herds by an infusion of fresh blood, may attend his sale.

POSTPONED SALE of full bred Short Horned and improved Dairy Stock:—

Owing to affliction in my family I have postponed the Annual Sale which was to take place in October 1850, until the 28th day of June 1851.

I also decline selling any Stock by private Sale, so as to offer the Public, at Auction, all the Animals I have to part with, without having any previously selected from the Herd, and all Animals offered will be sold without reserve.

My new importations of Short Horns, Devons, South Down Sheep and Hogs, will arrive sometime during the Fall.

Timely catalogues with full descriptions of each Animal will be published in the principal Agricultural Journals.

L. G. MORRIS.

MOUNT FORDHAM,
Sept. 16, 1850.

ENGLISH MARKET.

LONDON, Sept. 6—5 P. M.

The weather throughout the week has been most favorable for harvest operations, which are now being rapidly brought to a close the reports of the wheat crop are various, but we believe on the whole it will prove an average. Barley is complained of, both as to quantity and quality. The complaints of the potato disease have not increased. In the colonial and foreign produce markets we have again had considerable activity; coffee, sugar, and indigo, being the articles most in favor Cotton dull and prices barely supported. Money continues in fair demand, without any rise in the ratio.

At Monday's CORN market there was a good supply of new English wheat, many samples of which were inferior to that which sold last week, and some difficulty was found in placing them even at a reduction in price, while picked lots readily brought former rates. Foreign in large supply, sold slowly in retail at the previous currency. Barley, beans and peas 6d a 1s dearer, the first being in demand for export to Holland. Floating cargoes of foreign wheat were in demand for Ireland, and several were sold from 38s a 43s for Mediterranean and Black Sea. Indian corn also in fair demand from 25s a 28s for Ibraila and Galatz. On Wednesday there was little doing. To-day's market was steady; former prices, however, being insisted on for most articles, the demand was rather checked in consequence; American flour was more enquired for at 22s a 24s per barrel for superfine best brands; inferior 19s a 21s.

TORONTO MARKET.

TUESDAY, Sept. 24, 1850.

Transactions in flour have been very limited. Miller's extra superfine, by retail, in bags, 19s 3d a 21s 3d per 196 lbs. Farmers' fine, by retail, in bags, 15s a 17s 6d per 196 lbs.—Wheat ranged at from 3s 6d to 3s 11d per bushel of 60 lbs. The latter price being only paid for superior samples.—Spring Wheat 3s per bushel. Rye fetches 2s 6d per 60 lbs. Barley is coming in slowly, but is in good request at 2s 6d per bushel of 48 lbs. Oats 1s 6d to 1s 9d. Peas, the demand is merely nominal, therefore the price is as low as 1s 6d to 1s 9d per bushel. Potatoes are advancing in price, as the rot has affected them very much. They have been sold from 2s to 2s 6d per bushel for good.

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, WILLIAM McDOUGALL, } EDITOR, ASSISTANT EDITOR.

VOL. II. TORONTO, OCTOBER 1850. No. 10.

The Canadian Agriculturist.

Published Monthly, at Toronto, C. W.

TERMS:

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Bound Volumes, for 1849, will be supplied for 5s., delivered at our office.

All remittances should be forwarded to William McDougall, Proprietor, Toronto.

Letters are expected to be post-paid.

TO COOK THE EGG-PLANT.

This is a delicious and highly nutritious vegetable, which would be more extensively used, if the proper mode of cooking it was understood. The following mode has given satisfaction so far as we have known it tried. Cut the purple egg-plant into slices a third of an inch thick. Put the slices on a plate, one over the other, with a sprinkling of fine salt between each layer, and lay a weight of three or four pounds on the top; leave them in this situation for four or five hours or over night. The salt will form a liquid with the juice of the egg-plant, which will take out the bitter quality. The liquid should be drained off. Fry them brown in lard or butter.

The following mode of *stewing* the egg-plant is given by Miss Beecher: Take the purple kind, stew till soft, take off the skin, mash it with butter and sweet herbs, grate bread over the top, and bake it till brown.

PRESERVING TOMATOES FOR TABLE USE.

Tomatoes may be so prepared as to be kept a long time, and when cooked are almost as good as the fresh fruit. The following is a receipt sent up a few years since by a subscriber in South Carolina.

Prepare the tomatoes as for cooking, (without seasoning,) boil them one hour; then put them in small stone jars; cork and boil the jars for two hours, then take them out and seal them *air-tight*. When opened, season, &c., and cook for half an hour.

TOMATO KETCHUP.

Pour boiling water on tomatoes, let them stand until you can rub off the skin; then cover them with sat, let them stand twenty-four hours. Then strain them, and to two quarts put three ounces of cloves, two ounces of pepper and two nutmegs. Boil half an hour, then add a pint of wine. *Miss Beecher.*

ANNUAL EXHIBITION OF THE AGRICULTURAL ASSOCIATION OF UPPER CANADA,

At Niagara, Sept. 18th, 19th & 20th, 1850.

The fifth Exhibition of this patriotic society came off at the good old town of Niagara, and from all that we saw and heard it must be considered as having been eminently successful. Our readers have already been put in possession of the principal facts and outlines of the Show through the newspaper press, which has in a most painstaking and praiseworthy manner, devoted a considerable space to the proceedings of this great popular gathering. As a full report, we presume, will be drawn up by the Secretary and laid before the next meeting of Parliament, with other information in reference to the progress and future prosperity of this important Association, we shall confine ourselves for the present to a general description of the Exhibition; mentioning such facts as have come within our knowledge that appear worthy of a distinct notice.

The *locale* of the Fair must be considered as highly favorable; Niagara being easily accessible by steam boats from all points of Lake Ontario, and it is readily reached from Lake Erie and the West. The site was happily chosen but a very short distance from the steam boat landing, covering 14 acres of the large and beautiful Common, enclosed by a wooden fence ten feet high, in an octagonal form. The plan of the ground and buildings was similar to that at Kingston last year, only being about one fourth larger. The workmanship was good, quite as substantial as need be for a temporary purpose, and it did the contractor, Mr. Barker, of Niagara, great credit.

Tuesday was devoted to making entries and other preparations. The entries were readily taken without any crowding or inconvenience, by dividing the labor among efficient heads of department. Considerable difficulty was experienced in consequence of the very large amount of discretionary articles; some extra provision will have to be made for the future to meet this exigency. We would suggest to the Board of management, the desirableness of carefully revising and also enlarging the Premium list; thus keeping down as much as possible the amount of extra articles.

Early on Wednesday morning the Books for entries, according to the published regulations, should have finally closed; but from some cause or other, it was deemed by the Executive Committee expedient to rescind this rule, and a large number of entries was received up to noon on Wednesday. It is certainly difficult in practice, in a country like this, where distances are great and conveyances subject to interruptions, to be strictly punctual as to time; but it must be obvious that without the element of punctuality, the most perfect system of management will fail in being worked out. As soon as the books could be made up, the Judges proceeded to their important, and in many cases, difficult work. The public were admitted at 1 o'clock, and about 1400 single admission tickets were sold during the afternoon. We fear that this large number of visitors must have somewhat inconvenienced the Judges in the prosecution of their duties. Speaking of judges, we embrace the present opportunity of observing that for the future some plan must be devised for securing the services of a sufficient number of qualified persons, *whose attendance can be relied on*. As it was, much inconvenience was felt at Niagara in this respect, and with the large amount of discretionary articles in some departments, several of the judges had a most arduous and difficult duty to perform.

On Wednesday morning it appeared somewhat doubtful whether the large enclosure, pens and buildings would be fully occupied with visitors, stock and articles for exhibiton; by noon, however, it was apparent that a great gathering had actually commenced, so as to justify the most sanguine hopes for the result. Stock and articles of every description came pouring in, not only from the various sections of Canada, but also from the United States.

In the evening a large number of persons assembled in the Court House, to hear a lecture from Professor Croft, of the University of Toronto. We regret our inability to give even a slight outline of this interesting and instructive discourse, which was rendered additionally attractive by a series of illustrative experiments.—Mr. Croft's subject was the constituents of soils and plants, and he had been requested by the officers of the Society, not to dive too deep into the ocean of Science, but to give a plain popular description of the principal elementary substances, which enter into the composition of the soil, which the farmer tills, and the plants which he raises. Oxygen, nitrogen and hydrogen, with some of their more important compounds, together with the principal, mineral matters that are found in soils, formed the subject matter of the Pro-

fessor's lecture; while the illustrative, and often brilliant experiments, could not fail to impress upon the minds of the audience, the intimate connection which subsists between the art of cultivating the earth, and the fundamental laws of physical science. On the motion of E. W. Thomson, Esq., a vote of thanks was passed by acclamation to Professor Croft, for his able and interesting lecture. It is surely a hopeful sign of progress in Canada, when the great agricultural anniversaries are graced with discources on science, by men of eminence in their respective walks. Last year at Kingston, Professor Johnston discharged this honorable duty.

Thursday being the great day of the Show was ushered in with a drizzling rain, and all the appearance of a wet day. Fortunately the weather cleared up about noon, and notwithstanding the unpromising appearances of the morning, which no doubt kept away many hundreds from the exhibition, not less than 7000 tickets for single admissions were sold during the day, beside a large number of member's badges. The afternoon proved delightfully fine, the dust had been laid by the rain, and the Show grounds presented a scene of attraction and pleasure, which has never been approached at any previous exhibition. The Boats from Toronto and Hamilton were crowded to excess; and large numbers continued to arrive from Kingston, Cobourg and the other ports on Lake Ontario, with a goodly array of visitors from various parts of the State of New York.

The Show of Live Stock, if not quite so numerous as might have been expected, must be considered upon the whole, highly creditable to the country. In the Durham class there were some very fine bred animals belonging to Messrs. Howett, Fergusson, Joness, Wade, Atkinson, Miller, Dickson, &c. Of Durham Bulls 3 years and over, 13 were exhibited; also 14 Durham Cows, several of which possessed very high merits. Among the two years and yearlings there were many promising specimens, indicating much attention to the correct principles of breeding by their owners, and affording good ground for hope of continued improvement in the future. The amount of Devons was not large, but of this breed there were a few excellent representatives. The only Herefords on the ground were in the Foreign class. This breed can scarcely be said to have gained as yet a footing on this continent; Mr. Sotham, of Black Rock, N. Y., is making great exertions to introduce it, and judging from the many superior specimens which we have seen in his herd, and what he exhibited at Niagara, there can be no fear for his ultimate success. The Ayrshires were pretty well represented, and among the grades, which were numerous, there were several very fine and useful animals. An enormous fat Ox belonging to Mr. G. Vanderlip, of Niagara, attracted much attention; the animal was sold we understand to Mr. Armstrong, of Toronto, for £75.

The show of Horses was very good, but in some respects, perhaps, not superior to former exhibitions. For Agricultural Stallions there were 21 entries; Heavy Draught Stallions 8; Stallions 2 years old, 6. There were 13 pairs of matched carriage horses, which as a whole possessed nothing remarkable; 11 spans of Draught horses; 15 Brood mares; 7 thorough bred Stallions 3 years and over; 5 of 2 years, and only 3 thorough bred mares.

In the department of Sheep the exhibition was numerous and decidedly most superior. We have no space to particularise; our readers will be able to learn the names of the successful candidates in this, as well as other classes, by referring to the subjoined prize list. Of Leicester Rams there were entered, 19, two shears and over; 13 Shearlings and 14 Lambs. Of Ewes, 13, two shears and over; 10 two shears, and 16 Lambs. In South Downs the numbers was less, as might be expected, but in point of quality and good breeding this valuable kind of Sheep was well sustained. In several places around the immediate vicinity of Niagara this breed may be seen in an advanced state of improvement. There were and few specimens of Merinoes; but the low prices of fine wool, and in several localities, the climate of this country, will effectually operate against any great extension of this breed.

The Pigs, as regards quality, were of the highest order of excellence, surpassing, we believe, any previous exhibition, 12 Boars and 10 Breeding Sows, 1 year Sow, were shown; also 11 Boar pigs and 14 Sow pigs of 1850.

A considerable number of cattle, sheep, and horses from various parts of the State of New York we observed on the ground; among them no less than 17 Stallions, two of which were from Lower Canada. In the Foreign class there were several excellent specimens that attracted much attention,

The prominent feature in the Agricultural Hall was the large collection of wheat competing for the *Canada Company's prize of* £25. Regarding the quantity and quality of this rich display of the "Staff of life," it may be said, without fear of contradiction, that it has never been surpassed, if at all equalled, on this continent; or perhaps, in any portion of the world. No per-

son of ordinary discernment could have witnessed this department of the Exhibition without perceiving that Upper Canada possesses a soil and climate the best fitted by nature for the growth of the finest kinds of wheat. The same remark will apply almost in the same degree to most other grain crops adapted to temperate regions. The *Canada Company* have done a great service to the country by stimulating our farmers to give practical proof of what our soil is capable of producing; and the Association evinced a discriminating liberality in offering £12 10s. for the second best 25 bushels of wheat in this class. We hope to see next year a third prize. To show how liberal premiums call out competition it is only necessary to mention that last year the number of entries of 25 bushels of wheat in this class was only six; this year it has reached *twenty one!* In deciding which were the two best lots out of 525 bushels of wheat, the judges had a difficult and laborous duty to perform; but they accomplished it satisfactorily, and we doubt not justly. The following facts communicated to the Secretary by Mr. David Christie of Dumfries, the winner of the first prize, may be interesting to our readers.

"The wheat which I exhibit was raised on a clay loam, partly on summer fallow, and partly on pea-stubble. It was sown on the 6th of Sept.; the only manure which was applied was a light cowering of wheat straw, and the produce, so far as I can judge, will be about 36 bushels per acre. I obtained this variety (*the blue stem White,*) at the New York State Show at Buffalo, in 1848, where it obtained the first premium. It is decidedly the best kind of wheat I have yet raised." It weighed we understand 66lbs. per bushel.

The second prize of £12 10s. was won by Mr. Isaac Anderson, of Flamborough; no particulars of which have as yet reached us. The judges strongly commended a lot belonging to Mr. Clarkson Freeman, of Flamborough West, who it will be recollected carried off the first prize in this class, the two years preceeding.—In the class, 2 bushels winter wheat, 27 entries were made; and the three prizes were taken, as will be seen on inspecting the premium list, by the three individuals above mentioned, in the order in which their names occur. Some excellent specimens of Indian Corn were produced, but in most other kinds of grain the Show was less abundant than might have been expected; a remark that will also apply to farm root crops. We think there must have been some supineness in bringing these things forward; as we have seen several excellent growing specimens in the fields in various localities.

Thirteen barrels of Flour were entered for competition and the quality, upon the whole, must be pronounced exceedingly good.

The Mechanics' Hall was well filled with a creditable display of the results of Canadian ingenuity and industry; yet we must confess our disappointment at the absence of several important articles of native manufacture. In household furniture, broad cloths, Tweeds, &c., scarcely any thing worth mentioning was shown. We hope that the Society will be able in future to offer higher premiums for these, and other important articles, such as Hemp, Flax, &c., and that our rising manufacturers and mechanics will, with a becoming public spirit, embrace the opportunity of giving a popular publicity to the results of their ingenuity and enterprise. In Dairy products too there is great room for improvement. The quality of the cheese and butter certainly indicated an advancement; but the quantity was much less than it ought to have been. The entries for cheese were 26; and for butter 16. We could make similar remarks in reference to some other things, not in a mere fault-finding spirit, but with a view to waken up attention to common sources of profit that lie in our every day paths. When justice calls upon us to praise so much that was really worthy of praise, both in the materials and management of the recent exhibition; an exposition of industry of which Canada may well be proud; we feel equally impelled by the same principle to point out defects and short comings, wherever they are apparent. In this way only can progressive improvement be promoted.

In the important department of Agricultural Mechanics, the exhibition, if not so numerous as could be wished, was in most respects superior as to workmanship, and the quality of the articles. Of ploughs there were twenty-eight entries, including seven made of iron, one subsoil plough, and a very useful implement called a double mould board plough, made by Mr. John Smith, of Toronto. The threshing machines, fanning mills, drills, straw cutters, &c., although not numerous, combined several modern improvements, and clearly indicated the spirit of progress both in design and execution. How different were these things in Canada but a few years ago! Professor Hurlburt had on the ground the model of a steam cultivator, which we regret not having seen; we heard it highly spoken of as a most ingenious contrivance, and if it should be found practically available to the farmer's wants, its advantages would be immense. Hitherto the application of steam to the cultivation of the soil has been anything but successful. The his-

tory of the past, however, bids us hope for the future.

This department of the Exhibition was most materially assisted by several exhibitors from the United States—a country proverbially rich in mechanical expedients and ingenuity. Our space will not allow us to particularize, but we cannot omit to notice the extensive collection of Messrs. Rapalge & Briggs of Rochester; Emery & Co. of Albany had some excellent articles, and the collection of scales manufactured by Messrs. Forsyth & Co. were highly spoken of. There were 4 horse power Threshing Machines and Separators exhibited in the Foreign class, by different makers: that manufactured by B. O. Paige & Co., of Montreal, obtained the Premium; it is a most efficient machine, requiring a comparatively small amount of motive power. It was entered in the manfacturers' name by their agents, Messrs. Brothers & Co., of Hamilton.

Of the Floral Hall it may be observed that it appeared the most popular and attractive part of the Exhibition. There was one continued throng passing through it the whole of Thursday. The Ladies' work was rich and beautiful, and several of the paintings possessed no ordinary merit. The names of the successful candidates will be a clue to these—Paul Kane, Hopner Meyer, G. F. Price, &c., &c. The province of the fine arts lies, we confess, wholly beyond our latitude, and therefore we shall abstain from all particulars. We were much impressed, however, with the striking truthfulness to nature of several specimens of animals drawn in chalk, for which a diploma and discretionary premiums were awarded; these received from the "initiated" the highest meed of praise. They are the production of Mr. Carpendale, a young artist recently from England, who is evidently rising in his profession. We were glad to learn that the Committee had engaged Mr. Carpendale to sketch some of the prize animals, and also Mr. Price to make a drawing of the show-ground, for insertion in the *Illustrated London News*. Fruit and Horticultural products were not so numerous as we expected to find in this favored district, which we have heard designated *the garden of Canada*. We are much indebted for the filling up of this department to Messrs. Ellwanger & Barry, and Messrs. Bissell and Hooker, of Rochester, N. Y., who contributed some very fine specimens of fruit and flowers. The Floral Hall, however, with its various adornments in nature and art, was truly a delightful sight, and we state the simple truth when we say that the Society is deeply indebted to the ladies of Niagara for their contributions and personal superintendance; and to Dr. Melville, whose highly educated taste designed the decorations, and whose untiring exertions were cheerfully bestowed in rendering this department of the exhibition so eminently pleasing and attractive.

We have space but for a bare allusion to the numerous articles in the various departments of the Exhibition, several of which were of a high order of merit. Mr. Sheriff Ruttan's Ventilating Stove for public and private buildings, deserves a distinct notice from its universal application to the wants of the country, promoting the health, comfort and economy of every man's home.

In consequence of the lamented death of the President, John Wetenhall, Esq., the duties of that office devolved upon, and were ably performed by J. B. Marks, Esq., the senior Vice President; whose interesting and well timed address will be found on a subsequent page, as will also the proceedings of the dinner.

On Friday, the last day of the Show, the number of visitors was considerable, about 3000 single admission tickets were sold. The Treasurer commenced paying premiums, and the annual meeting of the Officers of Delegates was held in the Committee room on the ground; the particulars will be found in the present number. Brockville was decided as the place for holding the next Exhibition, and we trust that the people of that section will throw all their energies and resources into the work. Surely it would be beneficial to throw open the Society to the whole Province, and invite our fellow subjects in Lower Canada to become members, and also competitors, in our own classes. We throw out this hint for the consideration of the Directors. We may just mention that at the meeting of Delegates a strong feeling was manifested towards having the next Exhibition at London; and when the steady and liberal support which the Association has received from several of the Societies in the West, is considered, together with the increasing resources and rapid settlement of that fertile and extensive section of country, there can be no doubt but the Provincial Association will ere long pay it the compliment of a visit.

In drawing to a close these necessarily imperfect notices of the recent exhibition, we may just remark that experience has already shown the benefit of restricting the number of the Local Committee. That body at Niagara consisted of only some ten or a dozen individuals, who managed to work together in the most harmonious and energetic manner; a fact to which must be attributed no small share of the very successful working and results of the show. Where each has done his duty so well it would appear

invidious to particularise; but the writer knows how valuable and indispensable were the services of the local Secretary, John Simpson, Esq., who in the most praiseworthy manner zealously devoted himself, without any kind of compensation, to the necessarily arduous work of his office.

We must not omit to observe that the large and handsome British Flag, which so proudly waved in the breeze from the centre of the Show ground, was a present to the Society from an American citizen, Mr. E. Coulson Williams of Rochester, N. Y., who brought over a number of tents and marquees of his own manufacture, and who received a diploma for their superior excellence. Mr. Williams was very properly elected an honorary life member of the Agricultural Association of Upper Canada; and we trust that his handsome present will remain for many a long day, a memento of the mutual frendship and good will which should ever characterise a people who can proudly boast of possessing a common origin and language, and now forming the two greatest nations upon earth.

ANNUAL ADDRESS OF THE PRESIDENT OF THE AGRICULTURAL ASSOCIATION.

To the Members of the Agricultural Association of Upper Canada.

GENTLEMEN:

Owing the unexpected death of John Wetenhall, Esq., the President of the Association for the year 1850, the duties of that office have devolved upon me, the First Vice President of the Association.

By the lamented death of Mr. Wetenhall, the Association has been deprived of the services of one of its most zealous supporters; his being removed from this world in the prime of life, makes the calamity more distressing to his bereaved widow and family, and all that can now be done is to mingle our sorrow with his family and friends in deploring his early loss, and their irreparable bereavement.

At former annual meetings the Presidents in each year have prepared and delivered valuable and useful addresses to the members of the Association; in following up that practice, the difficulty will be in selecting sufficient matter upon Agricultural subjects that has not previously been mentioned and fully explained by former writers, but in so inexhaustible and comprehensive a field as the history, science and art of Agriculture, something can always be selected that may not prove uninteresting to the inhabitants of this growing country; therefore, on so universal a subject as must ever pertain to Agricultural pursuits, we may take up for the information of our farming community some parts of ancient history to show that the cultivation of the soil has been coeval with the existence of the human race, and among the ancients the occupation of the cultivators of the soil and the shepherd have been practised by the most noble and honorable.

The Egyptians in the days King Pharaoh must have attained considerable knowledge in the cultivation of grain, and from that time all along to the reign of King Solomon the Art of Agriculture must have been progressively improving to a great extent, otherwise that monarch could not order supplies of fine flour, meal and barley sufficient for his extensive household, and for the great number of artizans and workmen employed by him and the King of Tyre in framing and bringing down timber from Mount Lebanon, and floating it along the sea coast to Joppa, for the purpose of building the Holy Temple at Jerusalem.

Moreover, without again referring to Holy Writ, we are informed by Josephus, the Jewish historian, in his book 8th, that at a great feast given by King Solemn to the Hebrew nation on finishing the Temple, twenty two thousand oxen and one hundred and twenty thousand sheep were provided for the occasion. The same historian states in the 13th chapter of said book, that Elisha, when called to fill his holy office, was ploughing with 12 yoke of oxen. From these passages we may infer that Oxen were then in very general use in the cultivation of the soil, and that driving them and working with them was considered an honorable employment, practised by the most respectable men of the times herein mentioned.

When the Roman Empire was in its full glory and prosperity the arts and sciences flourished in a very eminent degree; Agriculture, amongst the other arts, was carried to great perfection: but upon the dissolution of that vast empire, agriculture also declined, and we have no very perfect history of the progress of this art in England until the 16th century, when Fitzherbert, Judge of Common Pleas, studied the nature of soils, and the laws of vegetation, with philosophical attention. Afterwards Sir Hugh Platt wrote upon the same subject, also, Messrs. Evelyn and Tull, natives of England, put forth valuable works on Agriculture, and later Sir John Sinclare's code of Agriculture has done much in improving the art in the kingdom of Great Britain; but above all, the Board of Agriculture established in England through the instrumentality of the last named distinguished patriot in the year 1791, has done more to bring the science of agriculture under a system of progressive improvement than any other measure.

In naming the celebrated men, who by their labors have been great benefactors to the public, it is not intended to take from the merits of numerous others in England and other countries who have labored in the same useful field; among whom we may justly mention the late Judge Buell, a citizens of the United States of America, resident in the State of New York, who it is believed has done more by his writing and example to increase the knowledge of agriculture amongst

his countrymen and others residing in this hemisphere than any other man on the continent of North America.

Agricultural Societies, particularly this National Agricultural Association of Upper Canada, is destined to prove highly beneficial to the inhabitants of this Province; the advantages of an institution of this nature will be numerous; it may be considered as a Magazine for Agricultural knowledge: in bringing intelligent men together, and in explaining the art and means of cultivating and improving the earth, so as to render it the most fertile and productive.

Every fact connected with the improvement of the soil or the stock it will maintain, may be collected, and if well conducted, a spirit of experiment will soon be exerted and every Farmer in the country may contribute his mite to the general benefit of his profession.

The Board of Agriculture established by the Legislature of this Province at its last session, will, when organized and put into proper operation, be the means of collecting and preserving and again distributing all sorts of useful knowledge connected with the science of Agriculture, and for the internal improvement of the country.

That the power and prosperity of a country depend upon the diffusion of useful knowledge can hardly be questioned, and there is probably no art in which a variety of knowledge is of more extensive importance than in that of Agriculture.

The extent of information necessary to bring it to anything like perfection is far greater than is generally supposed. To preserve the fertility of the soil, to free it from superfluous moisture, to cultivate it to the greatest advantage, to raise its productions at the least expense, to procure the best instruments of husbandry, to select the stock likely to be the most profitable, to feed them in the most judicious manner and to bring them to the most advantageous markets, to secure the harvest in the most unpropitious seasons, to separat e the grain from the straw with economy and success, and to perform all the other operations of Agriculture in the most judicious modes, require a greater extent and variety of knowledge than might at first view be judged requisite.

But though a general knowledge of Agriculture may be diffused over a great country, it is found by experience that it cannot be materially improved, unless by comparing the various practices which subsist in different parts of the country. One District has been led to pay a peculiar and successful attention to one branch of industry, while other Districts excell in other particulars of equal importance; mutual benefit is derived from the communication of such local practices. In this way matter of much importance and advantage to the country may be obtained by the General Board of Agriculture of the Province, and when a Professorship shall have been established by the Government, connected with the Board of Agriculture, the collecting and diffusing of useful knowledge in the art will be rapid, beneficial to the growing generation, and be the means of promoting that science in all times to come.

The Board of Agriculture would also be enabling to collect the best information on the nature of soils, draining lands, manures, culture and management of grasses, the best implements to be used in husbandry and the price thereof, the cultivation of particular plants, rotation of crops, management of sheep, and various other statistical returns not otherwise easily obtained.

From the geographical situation of Upper Ca nada, rich in soil and favorable in climate, it may be asserted that none of the possessions of Great Britain can be considered so purely an agricultural country. Being thus favorably situated, and where the numerical proportion of the inhabitants are of the agricultural class—as must ever be the case in Upper Canada—that community have always the advantage, next to the legislative branches, of giving a tone of feeling to the public,—and this is the crisis where the members of this Association, and all conditions of men should endeavor to raise that tone and feeling, and also in declaring our attachment to the Crown, Government and connection with Great Britain, and of bringing under the consideration of the Home Government all beneficial measures for the advancement of the trade and commerce of the country, and press upon the local government of the colony the establishment of declaratory constitutional laws and regulations for the internal management of our social system, such as the climate, the genius of the people and the wants of the country demand.

Wise legislation will be the means of encouraging emigration to this country, and we may from time to time expect tens of thousands of useful settlers from the mother country, not merely consisting of poor laborers, poor mechanics, and needy persons, but men and families of property of the respectable and middling classes of society will be induced to make Upper Canada their home, bringing with them knowledge in the various arts, particularly in agriculture, and what is still more wanted, they will bring with them large sums of ready money, thereby increasing our national capital, for unless a capital be employed in creating produce to a certain degree of abundance, so that the surplus can be disposed of, neither manufactures of any kind, nor trade can exist, but with healthy emigration, and increasing wealth, from the mother country, our prosperity will quickly improve, and here the new comers will find among their fellow subjects institutions similar to their own, and a secure home, where they and all others, both natural born and naturalized, will enjoy, without control, that religious liberty, freedom, justice and protection, so justly considered the birthright of all British subjects.

Never was there a better opening for new settlers with small capitals than at the present; the farms on the whole line in the old settled Townships from Montreal to Hamilton, and round the

banks of the lakes, rivers and bays for a space of eight or nine hundred miles, with few exceptions, are what is in Canada termed worn out, and may be purchased from about 3 to £10 per acre. The new purchaser would give employment to numbers of farm laborers and tradesmen, and introduce on these forms a better systems of farming and gardening, quickly producing three times the quantity of their present yield. Most of these lands are situated in delightful spots, and when once known one tenth of these farms would change hands every year, and with the money the present owners would again purchase ten times the quantity of wild land, in situations were they all know how to turn it to good advantage, —in this way the country would be doubly enriched and benefitted.

Strangers may ask, who and where manures are to be obtained for working and fertilizing the land in these old frontier townships. Manures can be obtained in great quantities, in many ways, there is lime stone and marl sufficient in the several Districts; and plaster of paris, or gypsum, on the Banks of the Grand River, sufficient to spread over and enrich all the cultivated lands in the province.

With regard to lime as manure, its advantages are too numerous to mention here. Doctor Darwin, states the most certain way to know whether any sort of stone be fit for making lime, is to drop upon it a little aqua fortis, spirit of sea salt, or oil of vitriol, all stones on which the above or any other strong acid effervesces, or rises in bubbles—are calcareous stones, and will burn to lime —and the stronger the effervescence is, the better they are for that purpose.

Lime could be made by the convicts in the Provincial Penitentiary at a small cost with great profit to the province from the stone now rejected by the artificers and convicts employed in completing the buildings, thechippings and broken lime stone thrown away, and considered of no value, may be compared to so much gold dust trodden under foot, when it is known that lime is a most invigorating manure for fertilizing most kinds of lands, for producing heavy crops of grain, grass and vegetables.

As all the penitentiary land near Kingston, consisting of about 100 acres, is a complete bed of good lime stones, fit for burning into manure, a gang of 40 or 50 convicts would produce sufficient lime to enrich the land of many Districts.

The moment its fertilizing qualities shall become sufficiently known, the Agricultural Societies would from its cheapness cause consumption of half a million of bushels annually, it could be easily shipped from the Penitentiary wharves, consequently vast quantities would be conveyed by water to all the Ports around the Lakes, and in addition to the quantity required for Agriculture, immense quantities would be used in the cities and towns for building purposes. The burning of lime by the convicts confined in the Penitentiary would be of such vital importance to the Province at large, that the subject will be brought fully under the notice of the members of the Agricultural Association to-morrow morning at ten o'clock.

The best modes for cultivating the lands in the old townships before mentioned, must of course be left to the judgment and skill of the farmers occupying them.

Amongst the many inventions of implements of Husbandry nothing can exceed the Plough.

Ploughs are perhaps the most important implements used on a Farm, and as the soils of farms are necessarily of various natures, so ought the ploughs to be diversified in their construction; but the best improved ploughs can only be used to advantage on farms that are well cleared and fit for cultivation.

Deep ploughing is much recommended by all scientific and skilful farmers, and sub-soiling will, we trust, ere long, be brought into general use in Canada; therefore farmers should be careful in procuring the very best kind of sub-soil ploughs. That eminent agriculturist Mr. C. Penner of Lachine, has favored me with the following description of a sub-soil plough which he imported fromEngland; it is named Reid's patent subsoil pulverizer, and the report of its working is well worthy the attention of our farmers.

"This sub-soil plough was produced at the Derby meeting by Mr. J. Read, of London, which had not the chance of being there submitted to trial. It re-appeared at Southampton, and was put to the test by the judges, with several others, in the hard baked soil of Mr. Spooner's farm. It is unnecessary to make a particular mention of these latter as no one of them was capable of executing even tolerable work in land so circumstanced. The Pan or old plough floor of this field had evidently never been invaded by Agricultural tools below 6 inches, it was as solid as centuries of ploughing and tramping can be conceived to have made a tenacious loam, aided by a drought of several weeks duration. Mr. Read's pulverizer was put into a furrow opened by a plough and set to work about six inches under it. To use the Judges own words "the old floor was split into fragments like broken tiles, and the soil separated and pulverized.—*See Royal Agricultural Journal* 1845.

It will not be necessary in this place to give much description of the implements of husbandry or other machinery used in farming purposes, as you have this day had before your eyes great varieties of said articles of the best description; but there is one article used by the dairy men of the State of New York, and in some parts of Canada, which deserves particular notice,—It is the churning mill which goes by a wheel turned by a dog or a sheep and the milk is churned without putting it into pans in the following manner, viz: the cows are milked in the evening and the milk strained into the churn, and the same the next morning; after breakfast the sheep is placed upon the wheel, which runs

horizontally, and the butter is made. By this process it is reported that one-third more butter can be obtained than by the ordinary mode of churning by hand, both the butter and milk being perfectly sweet after churning; in this manner the trouble of washing and cleaning the pans is saved. In a dairy of 20 cows nearly one hundred milk pans would be required in the common way of skimming and churning the cream; so we can easily imagine the immense saving of labor where the mill churn is in use. Besides churning I have seen one in the Bay of Quinte where the milk dasher is removed and a washing apparatus put on which made the clothes perfectly clean and less inured than by the common way of rubbing, no other labor being required except throwing the clothes into another tub for rinsing. Then the farmer (Mr. Samuel Purdy) applied another small crank and placed it to the grindingstone, grinding his hay scythes with great ease, no doubt, but a belt could be applied to said mill for cutting firewood.

It may not be out of place to bring under the consideration of this meeting whether horses or oxen are the most profitable teams for ploughing and most farm work.

It has been remarked that oxen are preferable to horses for steady draught, as they uniformly pull their strength without variation; they are indeed less expeditious than horses, but they are regular and progressive; exclusive of hay, a horse will consume more grain than will support a small family; thesame indulgence to oxen will increase their strength and size.

Horses become less valuable every year they are kept, and are liable to many accidents.—Every day oxen are employed they earn more than their keep, while if properly fed, they require no other care.

The more ox teams are brought into use the better their management will be understood; but to work oxen to the best advantage, it is necessary to have a driver who is well skilled in their nature and management and who has been accustomed to yoking and working them, he should be sober good natured, diligent and patient; such a person to every team will ensure the animals humane and proper treatment, and soon make them useful and beneficial to the owners, consequently it is hoped that the working of oxen will be brought into more general use among our farmers in Canada.

Whether Agricultural Associations be considered in a political light or not, it is the policy of the government to create and support them, because the cultivators of the soil are the principle cause of the wealth of the nation, they naturally expect to know something of our internal transactions, but to enter into detailed statements of the extent of our population, the amount of the Public Debts, manufactures, and the trade, and intercourse of the country, cannot be expected at this meeting.

Nevertheless as we are the principle rate-payers, and the principal consumers of merchandize whereon the taxes are indirectly levied for carrying forward the Government of the country, something ought to be mentioned upon these important points, therefore the following brief remarks must suffice for the present.

The population of Canada by the last census taken in 1850, will, it is expected, when the returns are made up, exceed 1,600,000 souls: and the public debt, and interest thereon, and the sums to be raised for carrying on the Government will exceed four and a half millions currency. Reckoning the population to give one householder, rate-payer, and purchaser of merchandize out of every four and a half, there will be something over 350,000 to bear the burden, and it is recommended that a premium should be offered to any person who can best devise when and how this enormous debt is to be liquidated and finally paid off. This point much concerns the agricultural community; if this offer fail, we must dig it out of the soil, for the land owners and yeomen of this Province (and we are mostly allland owners,) will always be ready boldly to suppress any aggression of the laws, or invasion of the country, and honorably to acknowledge and pay the public debt of the province.

With regard to the trade with the United States of America, after giving up the privilege of navigating our Lakes, and inland waters to the vessels of that nation, without the same advantage being conceded to our vessels, it is doubtful to know how far reciprocity of commerce and trade is going towards benefiting Canada. It is true that we should be large gainers in exporting grain and lumber and some other smaller articles into the United States; on the other hand free trade with them would immediately ruin our growing manufacturers, even now with the payment of a duty the Americans are bringing in goods and under selling our wholesale merchants. They are purchasing our wool and hides for ready money, taking it over into the United States, manufacturing it there, and bringing back the cloths, satinetts, and leather to undersell both the British and Canadian goods in our own markets; so it is hard for a new country to compete in all respects with an older one. For however we may respect the American people as a nation we must not permit the citizens of the said United States to take away our senses, as well as our money.

Therefore if we cannot have the advantages of a full free trade, some impulse might be given to our languishing commerce, by establishing and encouraging light differential duties at our sea ports, thereby inducing more shipping to resort to Quebec and Montreal, and improve our inland trade and navigation.

Notwithstanding our present disadvantageous position in point of trade, we have reason justly to be proud, next to our splendid Canals, Lakes, and River inland navigation, of the prosperity of this Agricultural Association; at the beginning it did not work so well as at present,

but at this fifth annual exhibition, we have the pleasure of informing the public, that by the liberality of the Government in voting two or three small sums of money, and the assistance of the County and Township Agricultural Societies, with the private subscriptions of the public at large the institution is free of debt, and enabled to expend at this meeting in premiums above the sum of £1,200, in addition to the large contingent expenses; thus with a little fostering care from the Government, and proper economy in the management (for economy is the life and soul of all agricultural pursuits) the annual exhibition of the productions of the Province will continue to increase towards greater perfection, for it is clear, that wherever the annual meetings are held some of the most valuable and improved heads of stock and the best and cleanest seeds of all descriptions together with all sorts of newly invented implements of husbandry, fit and proper for the farmer's use in saving time and labor in every Agricultural operation, will either be purchased in the neighborhood, or left in those places, as models, the good effects of which may be traced for half a century to come.

Acknowledging these immense benefits to the country, more might be done under the assistace of Divine Providence, by joining the funds of the Upper Canada Association with those of the Lower Canada Agricultural Society making one grand and splendid exhibition for the whole Province once a year, changing alternately from East to West, as a board of managers might deem most advantageous to the country at large.

This plan will also bring us nearer upon a level with our enteprising neighbours in the States of New York and Vermont, from whom we have gathered many valuable hints in clearing the forest, and in the use of several kinds of Implements of Husbandry, and at the annual exhibition in the state of New York the members of Agricultural Societies from Canada have invariably experienced from the Americans many acts of kindness, civility, and hospitality, which we in turn, according to our limited sphere, are always ready to acknowledge and reciproctae.

There is no selfishness amongst the members of Agricultural Societies in any country, they meet together for the purpose of endeavoring to arrive at the surest means of increasing the product of the land they live in, and expend their money and time, in devising the means for making improvements, it being evident that the more that can be produced must render food to every class of society plenty and cheap.

With regard to our position with our American neighbors, they probably have the advantage of us in the climate and nearness to the sea board for a market; on the other hand we may fairly claim the advantage in the best grain growing soil, unlimited water privilege and in extensive forests of timber, therefore a friendly intercourse at the Annual Exhibition may be cherished and increased without in any degree dimiinshing our nationality.

I have the honor to be,
Gentlemen,
Your most ob't Serv't,
J. B. MARKS,
First Vice President,
Ag. As. U. C.

Niagara, 19th Sept. 1850.

THE PUBLIC DINNER

Was laid in a large oblate circular marquee, erected for the occasion, at a little distance from the show-ground enclosure. The tables extended round the outer part of the area, leaving an open segment for egress. Other three tables were enclosed within these, running parallel with the largest diameter of the area. About half-past six o'clock, a large company sat down to dinner; J. B. Marks, Esq., President of the Association, occupied the chair. At the same table sat Hon. Col. Bruce, Hon. Adam Fergusson, Hon. H. J. Boulton, Col. E. W. Thomson, L. F. Allen, Esq., Buffalo, &c., &c. At the inner circular table sat the Judges. The centre of the first oblong table from the chair was reserved for the Press—Mr. Ferres, Montreal *Gazette;* Mr. Spreul, Whitby *Reporter;* Mr. McDougal, of the *North American;* Mr. Simpson, of the Niagara *Chronicle,* and perhaps some others, whom we did not recognise, were present; Mr. Smiley, of the Hamilton *Spectator,* and Mr. Brown, of the *Globe,* having left with the last boat at six o'clock. T. C. Street, Esq., Vice President of the Association, acted as croupier. The tables were very well laid out, and the company seemed all prepared to do justice to the good things displayed. The instrumental band of the Rifle Brigade was in attendance.

After dinner had been fully discussed the Chairman stated that the Committee had prepared a list of toasts, and that gentlemen had been appointed to propose these, and gentlemen had also been appointed to reply, so that there would be no room for voluntary toasts, and he hoped the meeting would not introduce any toast to break in upon the arrangements of the committee. He concluded by proposing the "Queen," which having been received with all the honors, Mr. G. P. Wells of Toronto, was called upon to sing the Queen's Anthem, which he did with good effect.

The Chairman then said, Mr. Vice President:—

Day was made for vulgar souls
But night for such as you andI.

He then gave "Prince Albert and the Royal Family." Prince Albert he said was fond of farmers, and of farming interests, and raised good stock.—(Applause.)

The Chairman then requested them to fill a bumper to "His Excellency the Governor General." He expected to have seen His Excellency at the Show, and His Excellency did intend to do himself the pleasure of being amongst them, so that he was certain some unforseen incident had prevented him.

Band—"*Scots wha hae.*"

Col. Bruce having been called upon to reply, rose amid great applause, and said, so little was he prepared for the Governor General's absence that he came down with the fullest expectations of meeting him on the show-ground. His Excellency on arriving at Toronto, told him that he intended to arrange his affairs so as to be back in time for this meeting—(hear, hear) to which he looked forward as one of the most agreeable circumstances of this present year. When he

himself reached Toronto from the North he was told that His Excellency had made all arrangements in order to be at the Agricultural Show in Niagara, (great applause), and furthermore, it was his intention and plan to be here on Thursday, as he would then not only have the pleasure of seeing the collected stock and the implements, the results of the industry of Canadians, but he would see the Canadians themselves, (hear, hear) assembled at the Show. He was really perfectly ignorant of what the circumstances were which had prevented His Excellency from carrying out his plains. But he knew him well enough to say, that he was certain he had been prevented by some matter of business, and not pleasure, for mere matter of pleasure, even hearing Jenny Lind herself would not have detained him at New York at this time. He would not have replied had he not been called upon by the Chairman to do so, and he had only further to return his sincere thanks for the enthusiastic manner in which the Governor General's name had been received, and he would make it his duty to inform His Excellency how cordially his toast had been responded to.

Band—"*Rock and the Wee Pickle Tow.*"

Col. Bruce again rose and said, a toast had been entrusted to him, which he certainly had accepted with very great pleasure because he felt it was one of very great importance, connected as it was with the object of their present meeting, and with the interests of this country. He was bound to Canada by a great many ties, and he would assure them he proposed with the greatest satisfaction, "The Provincial Agricultural Society of Upper Canada." Though he did not understand Agricultural Science sufficiently to speak to them with the same point and effect as many of his friends around him would do, yet from observation he could say that these societies, were,in all communities, of the greatest importance, and more especially in a young and growing community like Canana. It was impossible for any person, however ignorant of agricultural subjects, to witness the exhibition of all the implements brought forward without being convinced of the amount of skill which has been in operation to produce these and of the admirable effect such an exhibition will have. Persons of every class and of all quarters seemed to take an interest in what was exhibited, and it was no wonder because there was as much there to draw forth the admiration of the assembly as perhaps was ever brought forward at a meeting of this sort. They had the advantage of the implements of skill among themselves and they had the advantage of witnessing the *notions* which came from the other side, and they had the pleasure of seeing the gentlemen themselves with whom the notions originated. (Applause.) He hoped therefore, that they would continue to hold out inducements to bring these gentlemen forward in greater numbers, so that they may bring their notions forward to a greater extent.

Band—"*Bannocks o' Barley Meal.*"

Col. E. W. Thompson having been called upon to reply, said he was proud to be in a position to be called upon to respond. If anything in the course of his life gave him satisfaction, it was the reflection that he was a member of that institution, of which he trusted they were nearly all members. It would be improper, in addressing them, to say what he intended, if he did not feel that they had the same desire for improvement in agriculture as he had. He trusted that the results of the present meeting would be as satisfactory to them all as they had been to him. In 1846 he little expected that the experiment then made would result in the satisfactory manner in which it had done. They had been progressing, and although in 1847, when they met in Hamilton, the elements were opposed their prosperity, yet the meetingwas not altogether unsatisfactory. The one at Cobourg was satisfactory—the one at Kingston was also satisfactory, but this one is admitted on all hands to be more so than any of its predecessors. He trusted they would continue to use their best efforts to improve and still make progress, that it may be said many years hence, as it is said now,—our Show is the best that has yet taken place. [Applause] He hoped they would endeavour to interest their friends and neighbours in their glorious cause, and he trusted to be able to say that your stock has improved, the quality of your grain has increased also, and in every department of agriculture you are only growing nearer to perfection. The ladies of the land were also using their best efforts to make our meetings interesting. (Cheers.) With these feelings, then, he begged to return thanks on the part of the Society, and his own most sincere thanks for the manner in which the toast had been received.

The Chairman then gave the "Army and Navy."

Band—"*Rule Britannia.*"

Col. Bruce replied on the part of the Army.—Next to the approbation of the Sovereign the members of the British Army felt very highly the approbation of the people; and if the Canadians liked the Army, (and the applause the toast had called forth almost testified that), he could assure them that the Army are excessively fond of the Canadians. (Great applause.)

The Chairman replied on the part of the Navy. He said, Othello's occupation's gone. Swords are now to be beat into ploughshares,—but so long as Britain reared her sturdy sons, they would never want a brave Navy.

Chairman—"Time flies, but friendship stays,"—drink to the Agricultural Societies of Great Britain.

Hon. Mr. Fergusson said he had been called upon to respond to a very comprehensive toast. He claimed no other right to do so, than that of a good honest farmer who wishes well to the prosperity of the country he has left, and the one he is in,—who loves agriculture, loves farmers sons and daughters, who wishes every possible success to breeding in all its branches. He did feel a very special pride in being a member, and in having been a director of the Highland, and Agricultural Society of Scotland, the great mother of all their Societies—the great mother of the great English Agricultural Societies. They were all aware that in no part of the world,—even in these days of improvement would agriculture be found in higher perfection than in Scotland; and if it is traced out it will be found that the Highland Society of Scotland is the origin,—the *primum mobile* of all that has been done, not only on this side but also on the other side of the Atlantic. He came to Canada as a British subject, thinking that he was a very wise man indeed, and knew a great deal; but he had learned more in the last 12 or 15 years than he did all his life before. What he had seen this day delighted him beyond his powers of expression, on the present occasion its progress had been made that was most exhilarating during these times of free trade and those other hum-drum things. It was most exhilarating, and made one feel far more deeply interested in the welfare of his country to see the variety of things exhibited, and everything seemed as much as possibly could be desired—in a state of progression.—One little thing he would mention—in the way of improvement. He met a friend ten days ago at Albany, and purchased from him a small article which

he certainly considered at the time, was spending a dollar upon humbug. This was an instrument for milking cows, and he had to say now that he had given it a trial, that it was no humbug, and he had taken this opportunity of bringing it before their notice. For seven years past he had been in the habit of attending the New York State Agricultural Fair. He had had the honor of being invited there from year to year, and he would say that if they would only go there with candid feelings and with a desire to improve, they would see something that would astonish them, that would bring them up, as farmers, considerably in the scale of human nature. (Great applause.) They would see farmers where they ought to be, the leading principal men in the country. There was no class of society equal to the farmer, all depended upon the farmers for their support—they had not taken that position which they ought to have done, and which they deserve; but he trusted the natural results of such meetings would make them feel their own importance, as they do on the other side. There he had uniformily met with a great degree of kindness. He could assure their friends from the other side, that there existed the kindliest feelings here towards their neighbours, who go hand and heart with them in the way of improvement; and he would say if they would continue to send their notions, they would send them their dollars in return, and besides they would give them the warm hand of friendship,—happy to meet as good friends for the interchange of good feelings and with the desire to do each other all the good they could—of course every one minding what was for his own interest. One of their friends from the other side said, the other night —"We make our discoveries, and come over and show them, and then your people pick them up and our patents go for nothing." The reply he received was—"Pass the Reciprocity Bill and all will be right." (Applause.) Some allusion had been made in reference to the absence of the Governor General. While he regretted his absence he was certain that he was labouring hard for the interests of Canada.—He would take this opportunity of thanking his friends for all the kindness and hospitality he has met in attending State fairs, and would beg leave to propose—"Prosperity to the New York State Society, and all its members." (Cheers.)

Col. Bruce announced tnat a telegraphic despatch had been received from the Governor General, stating that Sir H. Bulwer being in New York in connection with the affairs of Great Britain, requested him to remain to consult with him officially.

L. F. Allen, Esq., of Buffalo, replied to the toast, and after thanking the meeting for the very cordial manner in which the toast had been received, said it was a matter of great satisfaction to them to know that there existed so much sympathy for them on this side the water, they looked to Canadians as to friends and brothers in this great cause; it was a cause for the promotion of the common good, for his benefit here, and certainly not against his interests hereafter. They were most happy to reciprocate in all the kind feelings which had been of late exhibited. And while a delegation had been sent to the Canadian Society, a delegation had been sent to the State Society in return. They had not always given the greatest satisfaction on these occasions, because everybody came to see the State Fairs and there was no room for all. They had, however, received the greatest pleasure in an interchange of these hospitalities, and to those who have attended the Canadian exhibitions they had afforded the greatest amount of pleasure, and many of the articles ranked even beyond their own. They had introduced some of their notions in Canada, but there were other notions they did not always exhibit and they had got a notion that the Canadians were wonderfully clever fellows. With regard to Cattle Shows, they considered them as one of the greatest improvements of the day; and in relation to their importance he would say of the people who first got up cattle shows as Sancho Panzo said of the man who invented sleep—God bless him. It had been stated that Scotland was the mother of all the Agricultural Associations. He blessed her with all his heart. Her name awakes associations that are precious, for there was no country on the earth with greater philosophers, greater statesmen, greater divines, or with greater poets, than Scotland. From Scotland had come into his country some of the greatest men in that grand rebellion which separated her from her mother country. In that great engagement they stirred up the feelings of the people with all the eloquence of a Knox. Scotland may glory in her divines, from Knox down to the soul-subduing eloquence of a Chalmers. (Great applause.) Among the glorious sons of that country, he would name but one, who shone as a great star in his own times, and whose descendants have been placed in high positions, and have served their country down even to the present day. He need but name the "Bruce of Bannockburn." (Great cheering.) The Americans acknowledged no other law than British law, and they took as much pride in England, in its triumphs, in its glories, in its interests, as the British themselves. They were kith and kin, and no mistake about it. They had taken the example from Britain in building up Agricultural associations, so that they had not only State associations, but they had branches in almost every county. These societies report regularly to the Parent society. Some of these reports had been distributed in Canada, and they trusted soon to have in return a copy of the Canadian report. These county Societies are the very soul of the Provincial Societies, and in the hope that they would all go on and prosper, he would give the "District Agricultural Societies of Canada."

Mr. Angus Cameron made a brief reply, and referred to the mission on which he was sent to collect money in aid of the Society, and testified to the unlimited confidence all the people had in the Parent Society.

The chairman then gave the "President of the United States."

This toast was received with great enthusiasm, and was appropriately responded to by Mr. Allen.

Mr. Street had great pleasure in rising to propose a toast one which he was sure would be well received by all present, and ought to be well received by every one, because it was no less a one than "the Judges of the day." They were the most important persons who attend these Societies and they require to be men of ability, men free from prejudice. They had succeeded in bringing together a class of men at this time fully capable of judging upon all the articles here exhibited. They had collected them from the Lower Provinces, from the United States, and from all sections of the country, and he believed they were fully competent to fulfill the high duty assigned to them. Their best thanks were due to these gentlemen, and he had the greatest pleasure in proposing the health of the Judges of the day—with all the honors.

Mr. Penner replied briefly. They felt the responsibility which rested upon them, and they duly appreciated the high sense of honor conferred upon them by such an appointment. There was no man should

accept such a situation unless he felt qualified and competent to perform its duties with satisfaction to the public. There was this one point stood in the way of the people who bring in stock or implements, or anything else, they come as it were to a lottery—each one expected a prize, but it was impossible that such could be given. They had then to abide the decision of the Judges, and receive that with satisfaction. The stock produced upon the present occasion was a noble specimen. It would do credit to any country. In former times they looked to the size of the animal, but at the present day the quality of the "prime pieces" is studied. The shape of the animal, a good shoulder a good loin, and a good breast, must all be taken into account. It gave him great pleasure to see the Herefords on the ground, as it was the first time he had seen the pure breed.—They were no doubt the most important of all stock for Canada.

Col. KINGSMILL after a few remarks, concluded by toasting the "Successful Canadidates."

Mr. CHRISTIE of Dumfries, who had exhibited the prize wheat, was called upon to reply, but as it was now getting late he had left a short time previous.

Hon. Mr. FEGUSSON briefly replied.

Mr. BOOMER proposed the unsuccesful competitors.

Mr. THOMPSON replied. He alluded to the fixing upon Niagara as a place for the exhibition. Some individuals had proposed the Falls as the best place. In the present instance it was very fortunate that it was not there. On Wednesday afternoon they were enjoying beautiful weather, while at the Falls the rain and showers of hail were very heavy.

The Chairman then gave our "Visitors from the United States of America."

Mr. SOTHAM replied. Although he lived in America he was a true born Englishman. He had lived in the United States for eighteen years and had not taken any oath of allegiance, and there was a tie between him and his mother country which never could be broken. Although Mr. Allen acknowledges himself a Yankee he is a John Bull baby, and the gentleman at the left (General Whitney) is a good a John Bull, for there is not a more straight-forward gentlemanly man in Great Britain.

Mr. ALLEN made a few remarks and in conclusion proposed the health of the Ladies.

As this was contrary to the instructions given from the chair it was not allowed to pass, which perhaps would have been the easiest way of settling the matter, as no one would wish to be guilty of being so ungallant as to refuse to drink to the ladies, even upon the shortest notice. As it was, a little healthy excitement was kept up. The meeting clamoured for the toast; the Chairman would not grant it. Mr. Boulton was called upon to proceed with the toast on the list which happened to fall to him. He rose but was not heard. Some of our young Toronto friends, headed by a Mr. Crew, made themselves a little too noisy for the comfort of their neighbours. However Mr. Boulton proceeded, and in—which is rather uncommon—a short and cogent speech proposed the Press of Canada.

Mr. FERRES of the Montreal *Gazette* was called on to reply. After apologising for not being prepared, having been taken unawares, he thanked the meeting for the enthusiasm with which they had received the Press. Without the possession of a Free Press, they could not have the possession of free institutions.—Without a free press free institutions never could be achieved, and without it they never could be preserved. It was therefore gratifying to see so many in all departments of life so thoroughly convinced of this great truth. This gives the press courage to resist even the semblance of oppression, and enables it to maintain firmly the balance of public virtue. The press depended upon the public—but a moment's consideration would show that the press returned the benefit with ample interest in the advantages it bestowed upon the community. So long as these mutual sentiments are maintained between the press and those who support it, so long will they bid defiance to any attempts to subvert the liberties of the country.

Mr. ROSE proposed the Mayor and Corporation of Niagara.

Mr. SIMPSON of the Niagara "Chronicle," replied.

Mr. THORBURN proposed the "Local Committee and the Stewards connected with the Exhibition."

Mr. STREET was highly gratified that the time had now come when the gallants of the meeting could, without fear of contradiction from the chair show their spirit and their enthusiasm. The subject was one which no human being could do justice to; even all the eloquence of Mr. Allen of Buffalo, was expended in vain. He would not detain them longer, but would propose, with all the honors, "The Ladies of Canada."

Col. BRUCE replied.

Mr. HAMILTON gave the "Educational Interests of Canada."

Professor CROFT replied.

Sheriff RUTTAN proposed the "Manufacturers and Mechanics' of Canada."

Mr. J. BOULTON replied in the name of the Mechanics.

Several other toasts were submitted, but as it had reached half-past 12 o'clock, a section of the company was left sitting.

[We are indebted to one of our City cotemporarys for the above report.]

THE ANNUAL MEETING OF THE CANADIAN AGRICULTURAL ASSOCIATION.

On Friday the Annual meeting for the election of officers &c., took place in the Committee room on the grounds, J. B. Marks, Esq., of Kingston, in the chair.

The following gentlemen were unanimously elected:

PRESIDENT—J. B. Marks.
1st. VICE PRES'T—T. C. Street.
2nd. Do. —Wm. Matthie.
TREASURER—R. L. Denison.
SECRETARY—George Buckland.

A communication having been read from the Secretary of the Provincial Industrial Commission, requesting the Society to name competent judges for visiting the approaching Provincial Exhibition at Montreal, the following gentlemen were appointed:

Mechanics—Sheriff Ruttan, Cobourg, and W. McCulloch, Brockville.

Grain—E. W. Thompson, and R. L. Denison, Toronto, and John Gilbert, Hastings.

Fine Arts—Messrs. G. P. Wells, Toronto, and J. M. Wilson, Norfolk.

Manufactures and Agricultural Produce—Messrs. B. P. Davy, Belleville, J. W. Rose, Williamsburg, and J. W. Huff, of Brockville.

Manufactures — Hon. G. Goodhue, London, C. W.

The following gentlemen, who intend visiting England next year, were appointed a deputation to represent the Association at the grand exhibition of the industry of all nations:

Honorable Adam Ferguson, E. W. Thompson, T. C. Street, H. Ruttan, Angus Cameron, W. M. Wilson, and G. P. Wells.

After which the following resolutions were severally put from the chair and carried:

Moved by the Honorable Adam Ferguson, seconded by E. W. Thompson—That this Association desires to express the deep and heartfelt sorrow with which they have received the announcement of the decease of the late President of the Association, John Wetenhall, Esq. His amiable temper, sound judgment, and cultivated mind, rendered his value in Canada almost inestimable, and his zealous attachment to agricultural pursuits brought his services in direct contact with the objects of this Association. The Association desires to sympathise most sincerely with the afflicted family of their late President, and to assure them that his memory will be cherished with the fondest regard, whilst it will be the pride and wisdom of the Canadian farmer to emulate his enterprise, to follow up his efforts for the advancement of his adopted country, and to adhere as closely as may be to the line of honorable conduct, in all the relations of life, which so eminently distinguished their late lamented President.

Moved by T. C. Dixon, seconded by J. Dougall,—That the next exhibition be held in London, C. W.

Moved in amendment by J. W. Ross—That the next exhibition be held at Brockville, during the third week of September, 1851—Carried.

Moved by E. W. Thompson, seconded by Mr. Secord—That the best thanks of this Association are due and hereby given to John B. Marks Esq., senior Vice-President, for his valuable and zealous services, and for the excellent Address with which he favored the Association, a copy of which he is requested to forward to the *Canadian Agriculturist* for publication.

Moved by Mr. Wilson, seconded by Mr. Askin—That the thanks of this meeting be given to Andrew Heron, Esq., and the other gentlemen of the local Committee at Niagara, for the very satisfactory and efficient manner in which they have discharged their onerous duties, and successfully carried out the important objects of the exhibition.

Moved by T. O. Street, seconded by J. Dougall,—That that the grateful acknowledgments of this meeting are due and are hereby given to the Ladies of Niagara, and other places, for the efficient and handsome manner in which they have sustained their peculiar and attractive part of the exhibition.

Moved by J. Dougall, seconded by Mr. Rose—That the thanks of this Association be given to the Mayor and Corporation of Niagara, and to the various Agricultural Societies, for their contributions to the funds of the exhibition.

Moved by E. W. Thompson, seconded by Hon. A. Fergusson—That the thanks of this Association be given to the Treasurers, T. G. Ridout, and R. L. Denison, Esqrs., for their valuable services.

Moved by Mr. Page, seconded by J. Wade—That the thanks of this Association be given to the Canada Company for their liberal contribution to the funds of the Society.

Moved by Angus Cameron, seconded by P. Davy —That the thanks of this Association be given to Prof. Croft of the University of Toronto, for the very interesting and instructive Lecture which he gratuitously delivered before a large number of our members on Wednesday evening; and that Professor Croft be hereby elected an honary life member of the Association.

Moved by G. D. Wells, seconded by R. S. Denison—That Mr. C. Williams of Rochester, be elected an honary life member of this Association; and that the thanks of this meeting be given to Mr. W. for having presented a British Flag for the use of the Society.

Moved by G. D. Wells, seconded by T. Page—That Silas M. Burrows, Esq., of Medina, Ohio county f New York, be admitted an honorary life member o this Association, for his handsome donation to the funds of the Society; and that the Secretary be requested to forward a copy of this resolution to that gentleman.

Moved by J. B. Marks, seconded by the Honorable Adam Ferguson,—That the Annual meeting of this Association be in future held at theCity of Toronto, on the second Tuesday in June, instead of the second Tuesday in February as heretofore.

Moved by the Honorable Adam Ferguson, seconded by Mr. Rose—That Messrs. Marks, Ruttan, Street, Thompson and Buckland, be a Committee to procure a Seal for the use of the Association, to be paid for out of its funds.

Moved by J. B. Marks, seconded by Mr. Rose—That whereas much advantage will accrue to this Province, as well as benefit to the agricultural community, to employ the Convicts in the Provincial Penitentiary at Kingston, in burning lime for manure, said lime to be sold throughout the country. It is therefore

Resolved,—That a Committee consisting of Mr. J. B. Marks, Colonel Cameron, and Mr. Geddes, be appointed to draft an Address for the purpose of being presented to the Legislature, to obtain the labor of the Convicts in the Penitentiary for burning lime in the Penitentiary grounds for manure and other purposes.—Carried.

The meeting then broke up.

PRIZE LIST.

CLASS A.—HORNED CATTLE.

JUDGES—Messrs. Parsons, Guelph; Walton, Peterboro'; Cade, York.

Durham Bull.

1. John Howett, Guelph; 2. Geo. Miller, Markham; 3. Wm. Atkinson, Guelph.

Three Year Old Durham Bull.

1. Mathew Joness, Darlington; 2. Hon. A. Fergusson, Woodhill; 3. W. H. Dickson, Niagara.

Two Year Old Durham Bull.

1. Edward Jones, Stamford.

Yearling Durham Bull.

1. R. Wade, jr., Cobourg; 2. G. Miller, York.

Durham Bull Calf, of 1850.

1. M. Joness, Darlington; 2. Hon. A. Fergusson; 3. J. Cade, Oshawa.

Durham Cow.

1. Mathew Joness; 2. Hon. A. Fergusson; 3. ditto.

Three Year Old Durham Cow.

1. M. Joness; 2. Hon. A. Fergusson; 3. do.

Two Year Old Durham Heifer,
1. J. Howitt, Guelph; 2. do.; 3. J. P. Wheeler, Scarboro'.

Yearling Heifer, Durham.
1. J. Howitt, Guelph; 2. do.; 3. Ralph Wade, Cobourg.

Heifer Calf, Durham.
1. R. Wade, jr., Cobourg; 2. do.

CLASS B.—DEVONS.

JUDGES—Messrs. Sotham, Black Rock, N. Y.; Penner, Lachine; Mairs, Barrie.

Devon Bull.
1. D. Tie, Wilmot; 2. J. Masson, Cobourg.

Two Year Devon Bull.
1. R. C. Gapper, Markham; 2. J. F. Gage, Wellington Square.

Bull Devon Calf.
1. R. C. Gapper; 2 J. Masson.

Devon Cow.
1. R. C. Gapper; 2. J. B. Ewart, Dundas.

Two Year Devon Heifer.
1. J. B. Ewart.

Devon Heifer Calf.
1. J. Masson; 2. do.; 3. do.

CLASS C.—(*No. Herefords.*)

CLASS D.—*Ayrshire Bull.*

JUDGES—Same as Class B.

1. Wm. Miller, West Flamboro'; 2. J. B. Ewart.

Ayrshire Bull Calf.
1. A. Cameron, Garden Island; 2. D. Smellie, Vaughan.

Ayrshire Cow.
1. J. B. Ewart; 2. ditto.

Ayrshire Two Year Heifer,
1. J. B. Ewart.

Ayrshire Yearling Heifer.
1. J. B. Ewart; 2. ditto.

Ayrshire Heifer Calf.
1. J. B. Ewart.

CLASS E.—GRADE CATTLE.

JUDGES—Messrs. Middleton, Newcastle; Boyce, Lennox; Wood, Lincoln.

Grade Cow.
1. T. Hodgskin, Guelph: 2. J. Cade, York; 3. A. Cameron, Garden Island.

3 *Year Grade Cow.*
1. T. Davis, Toronto; 2. James Williams, Niagara; 3. J. McFarland, ditto.

2 *Year Grade Heifer.*
1. T. Hodgskin, Guelph; 2. J. Shaw, Stamford; 3. J. Williams, Niagara.

Yearling Grade Heifer.
1. M. Joness, Darlington; 2. J. Cade, York; 3. T. Hodgskin, Guelph.

Heifer Grade Calf.
1. T. Hodgskin, Guelph; 3. M. Joness, Darlington; 3. R. Woodruff, Niagara.

FAT CATTLE.

JUDGES—Messrs. Fisher, Gore; Rose, Williamsburgh; Masson, Newcastle.

Fat Ox.
1. J. Vanderlip, Niagara; 2. W. Bishop, do.

Fat Cow.
I. C. Hynes, Haldemand; 2. George Guest, Grantham.

Working Oxen.
1. R. Hare, Haldimand; 2. J. Rogers, Niagara.

CLASS F.—HORSES, AGRICULTURAL.

JUDGES—Messrs. Bain, Haldimand; Blake, Norfolk; Wheeler, York.

Agricultural Stallion.
1. R. Hiscott, Niagara; 2. do.; 3. J. Powell, Yonge Street.

Heavy Draught Stallion.
1. —— Ward, Markham; 2. Thos. Nattress, Cavan, 3. A. Johnson, Burford.

3 *Year Old Stallion.*
1. J. Borthwick, Scarboro'; 2. J. Robb, Toronto; 3. S. J. Brown, Niagara.

Span Matched Carriage Horses.
1. J. Mink, Toronto; 2. John Brayley, Welland; 3. J. Mink, Toronto.

Draught Horses.
1. James Young, Grand River; 2. J. Cordwin, Stamford; 3. R. Hiscott, Niagara,

Brood Mare and Foal.
1. G. Stanton, St. George; 2. G. Miller, Niagara; 3. J. Gilliland, Grantham.

CLASS G.—HORSES, THOROUGH BRED.

JUDGES—Messrs. Wilson, Norfolk; Hamilton, Niagara; Davy, Lennox and Addington.

Thorough-bred Stallion.
1. J. G. Hathaway, Grantham; 2. T. Gillespie, Hamilton; 3. —— Cooper, York.

3 *Year Old Thorough-bred Stallion.*
1. W. H. Dickson, Niagara.

2 *Year Old Thorough-bred Stallion.*
1. J. Gilliland, Grantham.

2 *Year Old Thorough-bred Gelding.*
1. P. Lampman, Niagara.

Thorough-bred Mare and Foal.
1. W. H. Dickson, M. P.; 2. J. McFarland, Niagara.

CLASS H.—LEICESTER SHEEP.

JUDGES — Messrs. Dickinson, Durham; Hatt, Gore; Beattie, Middlesex.

Ram, 2 Shears.
1. W. Miller, Pickering; 2. S. Parker, Niagara; 3. James Beatie, Westminster.

Ram, Shearling.
1. W. Miller; 2. J. Dickson, Clark; 3. M. Joness.

Ram Lamb.
1. J. Mitchell, Stamford; 2. G. Miller Markham; 3. J. Pearson, Oshawa.

2 Ewes, 2 Shears.
1. W. Miller; 2. do; 3. J Wilson, Oshawa,

2 Ewes, shearlings
1. G. Miller; 2. J. Cade; 3. J. Pearson. Whitby.

2. Ewe Lambs.
1. M. Joness; 2. J. Wilson; 3. G. Miller.

FAT SHEEP.

2 Fat Wethers.
1. John Mitchell Stamford; 2. George Miller, Markham; 3. John Mitchell.

SOUTH-DOWNS.

JUDGES — General Whitney, Niagara; Messrs. Parker, Stamford; and W. Gage, Falls.

Ram, 2 shears.
1. E. Joness, Stamford; 2. J. Spencer, Whitby.

Ram, shearling.
1. E. Jones; 2. J. Middough, Niagara; 3. B. Ten Eyck, Saltfleet.

Ram Lamb.
1. J. Spencer; 2. E. Jones; 3. J. Cade.

2. Ewes, two shears.
1. E. Joness; 2. do.; 3. J. Spencer.

2 Ewes, shearling.
1. E. Joness; 2. do.; 3. J. Spencer.

2 Ewe Lambs.
1. E. Joness; 2. do.; 3. J. Middough.

MERINOS.

Ram, 2 shears.
1. J. Gibson, Grantham; 2. do.; 3. J. W. Ball, Niagara.

Ram, shearling.
1. J. Gibson.

2 Ewes.
1. A. T. H. Ball, Niagara; 2. J. Williams, do.; 3. J. Gibson, Grantham.

2 Ewe Lambs.
1. J. W. Ball.

CLASS I.—PIGS.

JUDGES—Messrs. Scott, Addington; Wade, Cobourg; Lottridge, Boston.

Boar, 1 year and over.
1. D. Smith, Trafalgar; 2. S. Dickenson, Hope; 3. Samuel Parker, Niagara.

Breeding Sow, one year and over.
1. S. Parker; 2. Geo. McKinlay, Trafalgar; 3. Wm. McMicking, Stamford,

Boar of 1850.
1. M. Joness; 2. D. Smith; 3 John Boyce, Amherst Island.

Sow of 1850.
1. M. Joness; 2. D. Smith; 3. John Boyce.

CLASS J.

AGRICULTURAL IMPLEMENTS.

JUDGES—Messrs. Jackes, York; Huff, Johnstown; Christie, Wentworth.

Wooden Plough.
1. J. Maudland Etobicoke; 2. Archibald Brown, Bradford; 3. E. N. D. McTavish, Darlington.

Iron Plough.
1. E. N. D. McTavish; 2. James McSherry, Niagara; 3. John Smith Toronto.

Subsoil Plough.
1. George F. Havens, Grantham.

Pair of Harrows.
1. John Smith, Toronto; 2. George F. Havens, Grantham; 3. Do. do.

Fanning Mill.
1. Lewis Houck, Markham; 2 M W Foster, Markham; 3. Lanson Butterfield, Oshawa.

Horse Power Thrasher and Seperator.
1. Van Brocklin & Co., Brantford; 2. Stewart & Co., Hamilton; 3. McQuesten & Co., Hamilton.

Grain Drill.
1. Goold, Bennett & Co., Brantford; 2. William Nixon, Grimsby.

Seed Drill.
1. John Durham, Niagara; 2. A. Swinton, Niagara.

Straw Cutter.
1. Goold, Bennett & Co., Brantford; 2. M. Tremaine, Clarke; 3. Van Brocklin & Co., Brantford.

Two-Horse Waggon.
1. M. Kempshell, Weston; 2. George F. Havens, Grantham; 3. Do. do.

Horse Rake.
1. John Harris, Brantford.

Wooden Roller.
1. Walter Elliot, Niagara.

Reaping Machine.
1. J. W. Ball, Niagara.

Cultivator.
1. John Smith, Toronto.

Narrow Axes.
1. Copp & Boyce, Galt; 2. Samuel Shaw, Toronto; 3. Charles Vale, Toronto.

Manure Forks.
1. Samuel Shaw, Toronto, 2. Robert Rundells, Fonthill.

Hay Forks.
1. Samuel Shaw, Toronto; 2. Robert Rundells, Fonthill.

Horse Shoes.
1. Matthew Purser, Cobourg.

Hay Forks.
1. J. H. Stewart, Stamford.

CLASS K.—DOMESTIC MANUFACTURES.

JUDGES — Messrs. Atkinson, Toronto; March, Scarboro'; Langs, Norfolk.

One-Horse Pleasure Waggon.
1. Pew & Ross, Drummondville; 2. George Smith, Catharines; 3. Henry Bond, Stamford.

Two-Horse Pleasure Waggon.
1. Pew & Ross, Drummondville; 2. Robert H. Jones, Belleville.

Farm Harness.
1. William Steward, Toronto; 2. William Gibson, Toronto.

Pleasure Harness.
1. William Gibson, Toronto; 2. William Steward Toronto.

Saddle and Bridle.
1. Sullivan & McGivern, Hamilton.

Sole Leather.
1. Macklem & Cummings, Chippawa: 2. Ursen Hanvey, St. Davids; 3. Do. do.

Upper Leather.
1. Porter Mackay, Dundas; 2. Ursen Hanvey, St. David's; 3. Porter Mackay, Dundas.

Calf Skin, Dressed.
1. Ursen Hanvey, St. Davids; 2. Ursen Hanvey, St. Davids; 3. Porter Mackay, Dundas.

Harness Leather.
1. Ursen Hanvey; 2. Do.; 3. Porter Mackay.

Fur Hats.
1. Joseph Rogers, Toronto; 2. do.

Fur Caps.
1. Joseph Rogers, Toronto; 2. do; 3. do.

Fur Sleigh Robe.
1. Joseph Rogers, Roronto; 2. do.

Bootmakers Work.
1. George Prest, Queenston; 2. Thos. Wade, Toronto.

CLASS L.—WOOLLEN AND FLAX GOODS.

JUDGES—Messrs. Schofield, Pelham; Delaney, Niagara; Bilton, Middlesex.

Blankets.
1. John Paterson, Dundas; 2. Ditto ditto; 3. William Gamble, Etobicoke; 4. J. Paterson; 5. W. Gamble.

Woolen Carpet.
1. William Gamble. Etobicoke; 2. Ditto ditto; 3. Barber Brothers, Esquesing.

Counterpane.
1. Daniel Field, Niagara; 2. Ditto ditto; 3. Thomas Dickson, Toronto.

Flannel.
1. William Gamble, Etobicoke; 2. Ditto ditto.

Satinett.
1. James Russell, Ancaster; 2. John Gibson, St. Catherines; 3. William Gamble, Etobicoke.

Flannel, not Factory.
1. John Gilbert, Sidney, 2. Jacob Baxter, Bertie; 3. Ditto ditto.

Fulled Cloth.
1. P. Gregory, Louth; 2. Jacob Baxter, Bertie.

Home-made Shawls.
1. Mrs. McTavish, Darlington; 2. Robert McNair, Vaughan; 3. Ditto ditto.

Linen Goods.
1. Samuel Wood, Grantham.

Flax and Hemp Cordage.
1. James Fewster, Oshawa; 2. Ditto ditto; 3. A. Ferrie & Co.

Hemp.
1. A. Ferrie & Co.; 2. Ditto.; 3. James Fewster.

Flax.
1. James Fewster; 2. A. Ferrie &Co.; 3. Peter Davy, Bath.

12 Linen Bags.
1. Robert McNair, Vaughan; 2. Jacob Baxter, Bertie.

CLASS M.—DIARY PRODUCE.

JUDGES—Messrs. McCullough, Brockville; Page, Cobourg; Hawit, Wentworth.

Cheese above 50 lbs.
1. Hiram Ranney, Dereham; 2, R. Wade, jun., Cobourg; 3. Ditto ditto.

Cheese not less than 20 lbs.
1. R. Wade of Cobourg; 2. do; 3. W. Lee, York.

Butter, firkin of.
1. Wm. Eagleson, Hamilton; 2. Jas. Thompson, Stamford; 3. Robert McNair, Vaughan.

Butter not less than 20 lbs.
1. James Stamford; 2. P. Whitmore, Niagara; 3. J. McPherson, Niagara.

Maple Sugar.
1. W. F. Weese, Ameliasburgh; Charles Young, Camden; 3. R. Wade, jun., Cobourg.

CLASS N.—CABINET WARE, &c.

JUDGES — Messrs. Harvey, Peterboro'; Townsend, Toronto; Fisher, Norfolk.

Work Box.
1. E. Clench, Cobourg.

Writing Desk.
1. E. Clenck, Cobourg.

Stuffed Birds.
1. J. Booth, Niagara Falls.

Picture Frame—Gilt.
1. Chas. March, Toronto.

Dentistry.
1. J. H. Petty, St. Catharines.

CLASS O.—AGRICULTURAL PRODUCE.

JUDGES—Messrs. Snider, York; T. Helliwell, Toronto; G. P. Dickson, Richmond Hill; Green, Pickering; Dew, York.

25 Bush Wheat—Canada Company's Prize.
1. David Christie, Dumfries; 2. Isaac Anderson, Flamboro.

Barrel of Flour.
1. Cowan and Park, Thorold; 2. Isaac Anderson, Flamboro.

Winter Wheat, 2 bush.
1. David Christie; 2. Isaac Anderson; 3. Clarkson Freeman, Flamboro, (27 entries).

Spring Wheat.
1. Wm. F. Weese Ameliasburgh; 2. James Cowan, Waterloo.

Barley.
1. Capt. Shaw, Toronto.

Spring Rye.
1. Isaac Anderson; 2. Capt. Shaw, Toronto.

Oats.
1. James Paton, Scarboro.

Peas.
1. Joseph Pierson, Whitby.

Indian Corn.

1. Job Chubbuck, Queenston; 2. Daniel Secord, Niagara.

Timothy Seed.

1. Capt. Shaw; 2. James Thompson, Stamford.

Clover Seed.

1. E. Jones, Stamford; 2. Samuel Parker, Niagara.

Hemp Seed.

1. James Fewster, Oshawa; 2. A. Ferrie & Co., Dunville.

Flax Seed.

1. Capt. Shaw; 2. A. Ferrie & Co.

Hops.

1, S. S. Barton, Sophiasburgh; 2. Geo. Belton London.

Potatoes.

1. James Williams, Niagara; 2. Richard Evans, Grantham.

Swedish Turnips.

1. Mrs. S. A. Boulton, Toronto; 2. Charles Torrey, Camden East.

Carrots.

1. James Hiscott, Niagara; 2. John Durham, Niagara.

Mangel Wurzel.

1. W. H. Coxwell, Toronto; 2. J. W. Rose, Williamsburgh.

Sugar beet.

1. Baron Grant, Kingston; Captain Shaw, Toronto.

Parsnips.

1. Baron Grant, Kingston; James Hiscott, Niagara.

HORTICULTURAL.

JUDGES—Messrs. Barry, Rochester; Dixon, London; Farrell, Haldimand.

Apples, varieties.

1. J. G. Currie, Niagara; 2. Joseph Brown, Niagara; 3. James Dougall, Amherstburg.

Table Apples.

1. James Dougall; 2. ditto ditto; 3. John Gilbert, Sydney.

Twelve Winter Apples.

1. James Dougall; 2. Joseph Brown, Niagara, 3. James Dougall.

Pears varieties.

1. Jas. Dougall.

12 *Table Pears.*

1. Jas. Dougall; 2. ditto.; 3. J. McPherson, Niagara.

Winter Pears.

1. Jas Dougall: 2. David Sturges, Niagara.

12 *Plumbs.*

1. Henery Turner, Toronto; 2. W. H. Coxwell, Toronto.

12 *Peaches, open air.*

1. James Dougall; 2. ditto.

Grapes, hot-house.

1. Mrs. S. A. Boulton, Toronto; 2. J. Fleming Toronto.

Grapes, open air.

1. H. Turner, Toronto; 2. Major Secord, Barton.

Pumpkins.

1. W. L. Perrin, Toronto; 2. W. F. Weese, Prince Edward.

Squash.

1. Wm. March, Scarboro'; 2. Wm. Gordan, Toronto.

Tomatoes.

1. Richard Woodruff, Niagara; 2. Tho's Barnet, Niagara Falls.

Brocoli.

1. Mrs. S. A. Boulton, Toronto.

Cabbage.

1. James Hiscott, Niagara; 2. Henry Turner, Toronto.

Carrots.

1. Baron Grant, Kingston; 2. C. Young, Camden.

White Celery.

1. Mrs. S. A. Boulton, Toronto; 2. E. & J. Moore, Hamilton.

Red Celery.

1. J. Fleming, Toronto; 2. Mrs. S. A. Boulton.

Egg Plants.

1. J. Binckly, Ancaster.

Blood Beets.

1. H. Turner, Toronto; 2. James Hiscott, Niagara.

White Onions.

1. Mrs. S. A. Boulton; 2. James Hiscott, Niagara.

Yellow Onions.

1. Mrs. S. A. Boulton; 2. H. Turner.

Red Onions.

1. John Durham, Niagara; 2. C. Terry, Camden.

Salsify.

1. James Fleming, Toronto.

White Turnips.

1. James Hiscott; 2. W. F. Weese, Ameliasburgh.

White Beans.

1. Richard Woodruff, Niagara; 2. John Gilbert, Sydney.

Dahlias.

1. Thomas Barnet, Falls; 2. James Hiscott, Niagara.

Collection of Green-House Plants.

1. J. Fleming, Toronto; E. C. Campbell, Niagara.

Canadian Coffee.

1. W. March, Scarboro'; 2. do.

Water Melon.

1. M. Aikman, Barton; 2. H. Turner, Toronto.

Musk Melon.

1. J. Fleming; 2. J. Hiscott.

CLASS P.—IRON, &c.

JUDGES—Messrs. Risley, Niagara; Helm, Cobourg; Wagstaff, Niagara.

Cooking Stove.

1. C. M. Tripp, Kingston; J. R. Armstrong & Co., Toronto; 3. Carter and Lane, St. Catharines.

Parlour Stove.

1. G. B. Spencer, Toronto; 2. J. R. Armstrong & Co.

Steaming Apparatus.
1. J. R. Armstrong & Co.

Churn.
1. W. Wilcot, Paris; 2. Samuel H. McIlroy, Oshawa.

Coopers Tools—Set.
1. Samuel Shaw, Toronto.

Balance Scales.
1. G. B. Spencer, Toronto; 2. do.

Earth Auger.
1. Samuel Shaw, Toronto.

CLASS Q.—LADIES DEPARTMENT.

JUDGES—Mrs. Dickson, Niagara; Mrs. Hall, do.; Mrs. Cameron, Cobourg.

Woollen or Cotton Knitting.
1, Miss Ball, Niagara; 2, R. H. Brown, Niagara.

Fancy Netting.
1, Miss H. Woodruff, Niagara; 2, Miss Parker, Niagara.

Embroidery.
1, Miss Hopkins, Niagara; 2, Miss R. H. Brown, Niagara.

Worsted Work.
1, Miss E. Wagstaff, Niagara; 2, Miss E. Lang, Wyndham.

Wax Flowers.
1, Miss Currie, Niagara; 2, Miss Clench, Cobourg.

Woollen Socks.
1, W. F. Weese, Ameliasburgh.

Woollen Mittens.
1, Mrs. W. Woodruff, Niagara.

Woollen Gloves.
1, Miss Page, Cobourg.

Quilts.
1, Miss Williams, Toronto; 2, Mrs. McCormick, Niagara.

Gentlemen's Shirts.
1: Miss H. Woodruff, Niagara.

CLASS R.—FINE ARTS.

JUDGES—Dr. Melville, Niagara; Messrs. Bull and Barber, Toronto.

Historical Painting (Oil) Canadian Subject
1, Paul Kane, Toronto; 2, ditto ditto.

Landscape—Oil—Canadian Subject.
1, Paul Kane, Toronto; 2, George Reid, Hamilton.

Animals—Oil.
1, Paul Kane; 2, ditto.

Landscape—Water Colours.
1, G. F. Price, Toronto.

Portrait—Water Colour.
1, H. Meyer, Toronto; 2, do.

Minature—Water Colour.
1, H. Meyer.

Flowers—Water Colour.
1, Mrs. Hammond, Toronto; 2, Mr. McFarland, Niagara.

Portrait—Pencil.
1, H. Meyer, Toronto; 2, do.

Portrait—Crayon.
1, H. Meyer.

Pencil Drawing.
1. Miss Jane Miller, Niagara; 2. Miss Leverett Lewiston.

Crayon Drawing.
1. John Wilkie, Dunville; 2. G. F. Price, Toronto.

Coloured Crayons.
1. T. C. Carpendale Toronto; 2. ditto.

Daguerreotype.
1. E. J. Palmer, Toronto.

Lithographic Drawing.
1. S. Fleming, Toronto.

Engraving on Copper.
1. J. Ellis & Co., Toronto.

Wood Engraving.
1. J. Allanson, Toronto; 2. F. Lowe, Toronto.

Ornamental writing.
1. S. Stacey, Toronto; 2. do do.

CLASS S.—POTTERY.

JUDGES—Messrs. Davis, York; Thomson, do.; Sheriff Ruttan, Cobourg.

1. John Dew, Toronto; 2. J. B. Brown & Co. Darlington.

CLASS T.—BOOKBINDING.

JUDGES—Messrs. De Walden, Toronto; Wetenhall, Hamilton; H. J. Ruttan, Cobourg.

Bookbinding.
1. John Simpson, Niagara; 2. do.

Writing Paper.
1: John Simpson, Niagara; 2. do; 3. do.

Printing Paper.
1. John Simpson, Niagara.

CLASS U.—INDIAN PRIZES.

JUDGES—Messrs. G. D. Wells, Toronto; Shaw, do.; Secord, Gore.

Moccasins.
1: and 2: Ignace Delisle.

Moccasins—Plain Worked.
1. and 2. Ignace Delisle.
Discretionary, ditto ditto.

CLASS V.—PLOWING.

JUDGES—Messrs. Smith, Stamford; Lennox, do.; Robinson, United States.

Ploughmen over 18 years.

1. Patric Dillan, Pelham; 2. James Johnston, Stamford; 3. Samuel Gladden, Grantham; 4. David Latric, Stamford.

Ploughmen under 18 Years.

1: John McMicking, Stamford; 2. Robert Jackson, Thorald.

CLASS W.—POULTRY.

JUDGES—Messrs. G. McMicken, Queenston; Cronch, Niagara; Crew, Toronto.

1: J. G. Hathaway, St. Catharines:

Fowls—Large Breed.

1: H. Osgood, St: Davids.

Turkeys.

1: J: G. Hathaway, St. Catharines:

Geese.

1: G: Miller, Markham; 2. do.

Topnot Docks.

1: J: H. Hathonay, St. Catharines:

Muscovy Ducks.

1: J: H. Hathaway; 2. H. Osgood, St: Davids:

CLASS X.—FOREIGN STOCK.

JUDGES—Messrs. McMicking, Stamford; Stanton, St. George; Bales, York.

Durham Bull.

1. Hiram Hosmer, Wyoming; 2. Joseph Trevor, Niagara.

Durham Cow.

1. Genl. Whitney, Niagara Falls; 2. do.

Hereford Bull.

1. Genl. Whitney; 2. Henry Lyon, Lewiston.

Devon Cow.

1. Hiram Hosmer.

Hereford Cow.

1. W. H. Southam, Black Rock; 2. Henry Lyon, Lewiston.

Stallion for Agricultural purposes.

1: Stephen Powell, Lewiston; 2. F: B. Northrope, Penenton, Monro County.

Blood Stallion.

1: S. M. Borrough, Modena; 2. H. Prosser, Cayuga:

Leicester Ram.

1. James Hosburg, Cambria; 2. do.

Leicester Ewes.

1. Samuel Hecox, Buffalo.

Southdown Ram.

1. William Dix, Lockport; 2. do. do.

Southdown Ewes.

1. Wm. Dix.

Merino Ram.

1. John D. Paterson, Westfield.

FOREIGN IMPLEMENTS.

JUDGES—Messrs. Watson, York; Wade, Northumberland; Kellam, Norfolk.

Sub-Soil Plough.

1. Rappalje & Briggs, Rochester.

Harrows.

1. Rappalje & Briggs, Rochester.

Fanning Mills.

1. R. & B.

Horse-power Thresher and Separator.

1. B. O. Paige & Co., Montreal.

Seed Drill.

1. R. & B.

Straw Cutter.

1. J. P. Smith, Rochester.

Portable Grist Mill.

1. T. D. Sterling, Buffalo.

Grain Cracker.

1. R. & B.

Root Cutter.

1. R. & B.

Corn and Cob Crusher.

1. R. & B.

Clover Machine.

1. R. & B.

Reaping Machine.

1. R. & B.

Cultivator.

1. Levi Wells Rochester.

Assortment of Agricultural Implements.

1. Rappalje & Briggs, Rochester:

DISCRETIONARY PREMIUMS.

M Purser, Cobourg, Iron Mill Beam...	£1	0	0
A Swinton, Niagara, Corn Sheller.....	1	10	0
W Ware, Thorold, Clover Head Gatherer.....	2	0	0
A Swinton, Niagara, Model Roller....	0	10	0
— Gladhill, Yorkville, Chain Pump....	0	10	0
A Swinton, Niagara, Model Cultivator,	0	10	0
W F Weir, Ameliasburgh, Axe Handles	0	15	0
H Bond, Stamford, Patent Steel Spiral Springs.....	0	15	0
W Eales, Kingston, Carriage Lever...	0	15	0
Capt. E Jones, Carillon, C. E., Model of Patent Carriage.....	Diploma.		
Thomas Thompson, Toronto, Scotch Collars..... Diploma and	1	10	0
Joseph Thirkeld, Toronto, Assortment of Whips..... Diploma and	1	0	0
John Holmes, Chinguacousy, Skirting Leather.....	0	15	0
T C Dixon, London, Silk Hats,.....	Diploma.		
Joseph Rogers, Toronto, 4 pairs Girls' Gauntlets.....	0	15	0
Foster & Co., Galt, Lasts, Trees and Stretchers.....	0	15	0
R J Killum, Pelham, Rug Carpet.....	1	0	0
W Gamble, Etobicoke, Horse Blankets	0	10	0
Do do Bear Skin Cloth	0	10	0
James Russell, Ancaster, Fulled Cloth	1	0	0
John Watson, Dumfries, Cheese Press.	0	10	0
George Stanton, do Box of Honey	0	10	0
J B Frizell, Brocklyn, Saleratus.....	0	15	0
— Bleazard, Hamilton, Case of Veneers	0	10	0
J Fisher, Norfolk, Plank of Plain Walnut.....	0	10	0
Do do Curled Maple	0	10	0
Piercy & Murphy, Toronto, Specimens of Graining.....	2	0	0
J H Berston & Co., Fonthill, Segars and Tobacco.....	1	0	0
Wm. Townsend, Toronto, Molodeon,, Diploma and	2	10	0
Peter Gage, Barton, Broom, Corn Brush and Seed.....	0	10	0
O N Brainard, Hamilton, Corn Brooms	0	10	0
D Fitch, Stamford, Model of Farm Gate	0	15	0
M Delancy, Niagara, 12 20 oz. Pippins	0	7	6
J Dougall, Amherstburgh, Collection of Peaches.....	0	10	0
H Gironard, Hamilton, do	1	5	0

Oliver Blake, Townsend, Nectarines, 0 5 0
J Dynes Saltfleet, Sweet Almonds.... 0 10 0
W J Gilbert, Hamilton, Case of Sarsaparilla, &c.,..... Diploma and 1 5 0
H Dougall, Barrie, Simcoe, Wooden Egg Stand..... 0 5 0
T Barnett, Niagara Falls, 44 varieties of China Asters..... 0 10 0
E & J F Moore, Hamilton, Pansies and Cut Flowers..... 0 10 0
George Vary, Niagara, 2 Cacti..... 0 10 0
Goold, Bennett & Co., Brantford, Hydraulic Ram..... 1 0 0
Do do Model of Hydraulic Ram..... Diploma.
O T Macklem, Chippewa, Double Forced Lift Pump..... Diploma.
Do do Last Steel Screw Square Thread..... 0 10 0
Do do Universal Chuck..... 0 5 0
Miss Baxter, Niagara, Worsted Work, 0 5 0
Miss Currie, do Child's Boots.. 0 5 0
Miss Tolloh, Belleville, Worsted Work 1 0 0
Miss Patrie, Kingston, do . 0 15 0
Mrs. Powell, Niagara, do . 0 5 0
Miss E C Clench, Cobourg, do . 0 15 0
Miss A Gray, St. Catharines, do . 0 10 0
Mrs. Fitzgerald, do . 0 5 0
Mrs. Stewart, Niagara, Turkey Feather Tippet..... 1 0 0
Mr. Carpendale, Toronto, Chald Drawings..... 2 Diplomas and 4 10 0
John P Kennedy, Niagara, Balance Chart..... 0 10 0
Mr. Hammond, Toronto, Indian Japan Screen..... 0 10 0
Paul Kane, Toronto, Evening Scene—Buffaloes..... Diploma and 1 10 0
Thos. Wheeler, Toronto, Seal Engraving,..... Diploma.
Do do Portable Seal Press Diploma.
Mrs. McDonald, Toronto, Miniature Water Color..... 1 10 0
Mr. Ward, Ancaster, Machine for bending Waggon Tire..... 1 0 0
John Gurd, London, Model of Safety Lock..... Diploma and 2 10 0
J G Hathaway, St. Catharines, Pr. Dandy Fowls..... 0 5 0
Do do Bantams 0 5 0
Do do Golden Top Knots..... 0 5 0
Do do Wild Turkeys..... 0 5 0
Do do Chinese Geese 0 5 0
Do do Irish Geese 0 5 0
Do do Wild Geese 0 5 0
Do do Wild Wood Ducks..... 0 5 0
W Blanskell, St. Catharines, Ploughman..... 1 0 0
Michael Cronin, Queenston, Do 1 0 0
H Wiseman, Markham, 2 Years Old Draught Stallion..... 0 10 0
R Dockstader, Haldimand, 3 Years Old Filly..... 0 10 0
Samuel Wood Grantham, 2 Years Thorough Bred Stallion..... 0 15 0
H Vansittart, Woodstock, 4 Years Thorough Bred Filly..... 1 0 0
H Parson, Guelph, 4 Pigs, Sussex Breed 0 10 0
T Scott, Niagara Falls, 2 Ferretts..... 0 10 0

FOREIGN.

S S Hitchcock, Rochester, N. Y., Assortment of Scales.... Diploma and 1 0 0
W C Smith, Attica, Wyoming, N. Y., Cheese..... 0 10 0
Rapaige & Briggs, Rochester, N Y, Cultivator..... 0 15 0
Emery & Co., Albany, N Y, Assortment of Implements.. 2nd Prize and 3 0 0
Daryer, Forsyth & Co., Rochester, Cattle Scale..... 1 10 0
Do do Large Assortment of Scales..... 1 0 0
John Mead, Yates, N Y, Two Horse Waggon..... Diploma and 0 10 0
J V Evedder, Niagara, N Y, Endless Chain Pump..... 0 10 0
G L Lundy, Rochester, Fire Engine Pump..... Diploma and 1 0 0
Levi Brown, Ransonville, Double Action Force Pump..... 0 10 0
Peter Fraer, Lewiston, Churn..... 0 10 0
J R Robertson, Syracuse, Cheese and Butter Maker..... 0 10 0
John Rich, Troy Cast Iron Beam Plough 0 10 0
Samuel Davidson, Rochester, Blue Stem Flint Wheat..... 0 10 0
A Robinson, Lewiston, Indian Corn... 0 10 0
DeWit & Roob, Buffalo, N Y, Parlour Stove..... 0 10 0
D Hinman, Berea, Obio, Scientific School Apparatus.... Diploma and 0 10 0
Hallett, Davis & Co., Boston, Masstts. Piano Fortes..... Diploma.
D Benson, & Co., Buffalo, N Y, do.. Diploma.
Miss Seeley, Lewiston, N Y, Embroidery..... 0 10 0
Ellwanger & Barry, Rochester, Varieties of Dahlias..... 0 10 0
Do do 129 Varieties Apples, Pears and Plums..... Diploma.
Messrs. Bissell & Hooker, Rochester, Pears..... 0 7 6
John D Paterson, Westfield, Chautaque County, N Y, 6 Merino Rams, Diploma and 2 10 0
D B Gerauld, Niagara Falls, N Y, 4 Years Old Gelding..... Commended.
Joseph Christopher, Buffalo, N Y, Matched Carriage Horses..Highly Commended.

WELL, WHAT NEXT ?—Somebody has invented a machine for milking cows. When we first saw a notice of it we supposed it was joke, but the Rochester American refers to it as follows:

Milking Cows—A New Method.—The new method of milking which our readers may already have seen something of in the papers, is no joke, but a practical reality. An informant of ours witnesed the operation in the farm yard of Joseph Fellows, Esq. of Geneva, but a few days since. India rubber bags were drawn over the cow's teats, which set close enough to exclude air, in the lower end of which metallic tubes were inserted, closed by taps. When the four were adjusted, the taps were withdrawn, and the milk streamed from each teat into the pail exhausting the whole quantity in the cow's bag, in half the time that it would take to milk in the ordinary way. It is a useful invention, against which, no valid objection can exist, and will be likely to come into general use. The prime cost of a set—four milkers, we shall have to call them, cannot exceed fifty cents.

They are simple; easily and cheaply manufactured. When cows are stalled, it would seem that one man could milk ten in fifteen minutes, if he was supplied with the milkers for each cow.

LINSEED.

The seed of the flax plant, or linseed, has long been known by farmers to be a very nutritious substance; as well as one that may be used to advantage in certain complaints of cattle, as a safe and efficacious medicine. The whole seed boiled soft, and, together with the water in which it has been boiled, is given in many parts of the country as a cordial drink to cows after calving, and as a tonic to promote recovery after an illness. But, like all seeds having a strong envelope, when administered in a whole state, even on being boiled, is apt to pass through the digestive organs of ruminating animals unaltered. To derive all its nutrient property, it should be used only when bruised or converted into meal. In the form of meal it has long been used, after being boiled into a porridge or jelly, as an assistant food to milk for the older calves, until they are weaned. Linseed meal, when boiled and used hot, forms also an excellent poultice for the drawing of any sore that may affect an animal.

PATENT SELF-ADJUSTING CHURN.

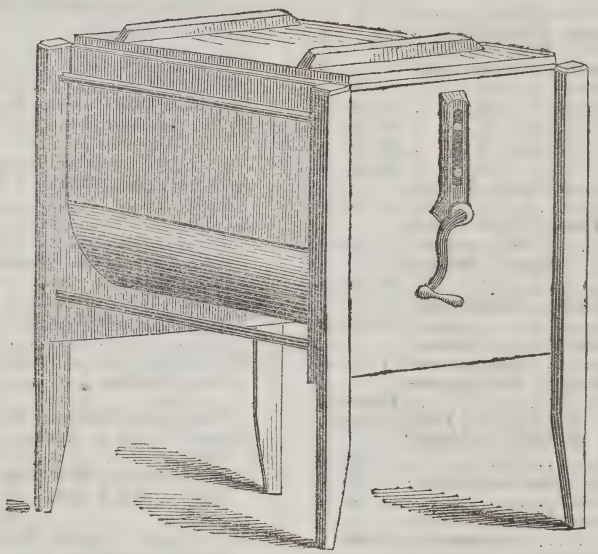

FIG. 1.

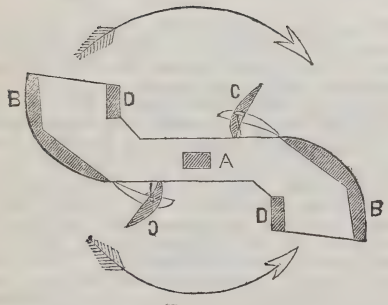

FIG. 2.

We present our readers with the above cut of a newly invented churn, constructed on a principle that has lately been applied to churns with great success. This principle is simply adjusting the floats of the dasher, which is placed in a horizontal position, in such a manner as to force the milk or cream towards the centre, by turning in one direction and from the centre by turning in the opposite direction. By the first motion the butter is quickly produced, and by the second it is collected together, and partially freed from the milk. The above appears to us to be a simple and cheap application of this principle. The arrangement of the floats differs from any we have seen in this, that two of these (c. c.) are moveable. When the dash is turned in the direction of the upper arrow the floats stand open, and allow the cream to pass through. When the butter has been produced and the motion of the dash reversed for the purpose of gathering, these floats shut down and force the butter and cream against the sides and bottom of the churn. There

is no fanciful machinery about this churn, and it may be made by any ingenious carpenter. We subjoin the description of the inventor Mr. Davis, of Steuben Co., N. Y.

DESCRIPTION OF THE CUT.

Fig. 1. is the churn box. Fig. 2. is an end view of the dasher.

The construction of the churn varies materially from any other churn hitherto presented to the public. It has a rotary eccentrical dasher, comprising two self adjustable, and two stationary floats; the latter being set at such angles as to force the cream, when turning in the direction to produce the butter, towards the centre; it is then met by the moveable floats, which when revolving in this direction, stand open, and cause the cream to move outwards, which various and contradictory motions so agitate the cream, that the butter is soon produced. In order to gather and work the butter, the dasher is turned in a contrary direction, by which the moveable floats close, forming a curve eccentric to the axis, moving with the convex side foremost. By a few revolutions, the butter is thrown from the centre to the side of the churn box, and there gathered into a roll. The milk may then be drawn off, and by continuing the motion of the dasher, the butter is pressed against the bottom and side of the churn, and worked entirely free from milk. The dasher may be easily taken from the churn, in order to remove the butter, and then replacing it, a quantity of water may be poured in and a few revolutions will complete the washing of the churn.

This churn may be manufactured for from $3 50c to $5 00 each.

OIL-CAKE.

Oil-cake has been long and much employed in England for the feeding of cattle, and is making its way in that respect into Scotland. It consists of the compressed husks of linseed, after the oil has been expressed from it, when it is formed into thin oblong cakes. The cakes, when used, are broken into pieces by a machine. Cattle are never entirely fed on oil-cake, which is always associated with other substances, as turnips, potatoes, cut hay, or cut straw. When given with cut hay or straw, an ox will eat from 7 to 9 lbs. of it a-day; and the hay or straw induces rumination, which the cake itself would not do. Oil-cake and cut-meadow hay form a very palatable and nutritious diet for oxen, and is a favourite one in England. When given with turnips and potatoes, 3 lbs. or 4 lbs. a-day will suffice.

How to Keep Butter.—Fill kegs that hold from 120 to 140 lbs. with well salted butter, and when headed up, put each barrel into common-sized pork barrel with brine and keep it in a cool cellar. In the month of November following the butter is found to be as good as when first put up.

Important Invention.—*Every man his own Candle maker!*—We were yesterday presented by Mr. Ezra Clark, of Portland, Maine, with something new, in the shape of a Candlestick, which makes and wicks its own candles, out of melted tallow, lard, or any grease that will burn. It has been well observed that "there is nothing of a utilitarian cast that is above the aim, beyond the reach, or beneath the notice of a Yankee," and the present invention goes to prove the truth of this remark. The advantage of this new article, says the Portland Transcript, which is at once Candle-stick and Candle maker, are manifold. It is about the size of a common lamp, of a neat and substantial appearance, and for the cost of a pound or so of lard, grease, or tallow, gives a clear and steady light for a week, allowing it to be burned four hours per night. The tallow is melted and poured into the lower chamber of the candle-stick—a quantity of wicking having been previously inserted — and when it has sufficiently cooled, a few turns of the bottom bring out a candle all wicked and ready for use.—This candle can always be kept at one length, does not drip or run down, and has none of the flaring, vibrating motion, so vexatious to the eyes of readers. All this is effected by a very simple contrivance within the stick, and its cheapness and convenience must we think, recommend it to general use. To farmers and others, who always have a plenty of tallow or lard on hand, it must be very useful, making, as it does, every man his own candle maker.—*Newbrunswicker.*

EARLY DAYS OF NAPOLEON.

Thiers, in his *History of the Consulate*, relates some very strange and previous unknown particulars respecting the life and penury of Napoleon Bonaparte. It appears that after he had obtained a subaltern's Commission in the French service, and after he had done the state good service by his skill and daring at Toulon, he lived for some time in Paris in obscure lodgings, and in such extreme poverty that he was often without the means of paying ten sous (5d.) for his dinner, and frequently went without any meal at all. He was under the necessity of borrowing small sums, and even worn out clothes, from his acquaintances! He and his brother Louis afterward king of Holland, had at one time only one coat between them, so the brothers could only go out alternately, turn and turn about. At this crisis the chief benefactor of the future Emperor and conqueror "at whose mighty name the world grew pale," was the actor Talma, who often gave him food and money. Napoleon's face afterwards so famed for its classic mould, was, during this period, of starvation, harsh and angular in its lineaments, with projecting cheek bones. His meagre fare brought on an unpleasant and unsightly cutaneous disease, of a type so virulent and malignant that it took all the skill and assiduity of his accomplished physician, Courvisart, to expel it, after a duration of more than ten years.—The squallid beggar then, the splendid emperor afterward — the threadbare habiliment, the imperial mantle—the hovel and the palace—the meagre food and the gorgeous banquet—the friendship of a poor actor, the homage and the terror of the world—an exile and a prisoner—such are the ups and downs of this changeable life.

He who commands himself, commands the world too; and the more authority you have over others, the more command you must have over yourself.

Editor's Notices, &c.

TRANSACTIONS OF THE NEW YORK STATE AGRICULTURAL SOCIETY FOR 1849.

We are indebted to the courtesy of B. P. Johnson, Esq., the indefatigable Secretary of the New York Society for a copy of this handsome volume. It is truly pleasing to mark the rapid progress which this important Society continues to make; a fact clearly indicated by the higher and more useful character which its published transactions assume from year to year. The present volume is superior to any of its predecessors, not merely in the quantity of its matter, but in the intrinsic worth and practical application of several of its principle articles. We find in it Professor Johnston's address before the Society at Syracuse; also a copious report of his Lectures delivered at Albany, all of which are eminently suggestive and interesting to the thinking farmer. Professor Norton's admirable prize essay on the principles of scientific agriculture is also there, a production which no farmer can carefully study without gaining an intelligible notion of the many why's and wherefore's of his invaluable art. There are several other papers of considerable length of, perhaps, equal value, which we have not space to enumerate. Hereafter we hope to transfer some of the gold from his rich mine to our own colonies. The work comprises about one thousand pages, and is illustrated by a number of engravings. It is printed by order of the House of Assembly at the expense of the State.

PLOUGHING MATCH AT THE PROVINCIAL EXHIBITION.

We inadvertantly omitted to notice the ploughing match in our general account of the Niagara Show.—Nineteen ploughmen entered above 18 years of age and two under eighteen. The field belonging to John McFarland, Esq., on the Queenston road, not being large enough for the whole of the ploughs; some were started on the farm of R. Hiscott, Esq. The ploughmen, with but one exception, were from the Niagara District, and the work upon the whole was good. The ploughman out of the district was from Scarborough, but he did not succeed in obtaining a prize, arising, we understood, from some informality in the completion of his work. We hear that a contest is likely to take place in this very important art between Scarborough and Niagara. Our own opinion is that a Ploughing match to be much worth, should be a separate thing; such for instance as took place at Pickering and Thornhill. At the Provincial fairs the ploughmen are pretty much confined to the immediate neighborhood; comparatively little interest is excited in consequence of the officers and people generally being so much engaged with the concerns of the Show; so that the ploughing match sinks into insignificance. The ground too, at the season when the Show is held, is usually too hard and dry for the purposes of ploughing. We think the Society would not neglect the interests of Agriculture, and would certainly render the management of the exhibition more simple and perfect if for the future, they excluded both the ploughing match and the public dinner.

TORONTO INDUSTRIAL EXHIBITION.

This exhibition in connection with the Machanics' Institute in this city was opened immediately after the closing of the Fair at Niagara. It is not so numerous as might have been expected from the amount of prizes offered; but the quality and workmanship of the leading articles exhibited have been admired for their superiority and high finish. The Governor General distributed the prizes in the City Hall. A number of articles will afterwards be transmitted to the Provincial Exhibition at Montreal, which is to take place next week. We hear that a very numerous gathering both of articles and visitors is expected.

AGRICULTURAL REPORTS.—Owing to our space in the present number being so fully taken up with an account and the prize list of the Niagara Exhibition, the communication from our esteemed correspondent, Mr. Sheriff Treadwell, must stand over till our next.

Toronto Market.

TORONTO Tuesday Oct. 8, 1850.

The Market was brisk to-day, and well supplied. Flour 19s 3d a 20s per barrel for superfine. Miller's extra superfine, in bags, 19s 6d a 21s 3d per 196 lbs. Farmer's Fine, 16s 3d a 16s 9d ditto. Wheat 3s 7d a 3s 10½, superior samples only reaching the latter figure. Rye 2s 6d per 60 lbs. Barley 2s 6d a 3s. Oats 1s a 1s 3d Potatoes, 1s 10½d a 2s 6d. Peas, 1s 6d a 1s 10d.

New York Markets.

NEW YORK, October 7, 1850.

Ashes, Market steady for Pots, with good demand at $6,12; Pearls quiet at $5,87; sales 100 brls. Flour—Less doing in Western firm, in good demand, at rather better prices. Occasional lots are picked up below our figures. Shippers would buy at $4,50. Sales domestic, 8200 brls. at $3,75 a $4,12 for No. 2 superfine; $4,56 a $4,62 for common to strait state; $4,56 a $4,58 for Michigan and Indianna; $4,95 a $5,06 for pure Genesee; fancys and extras firm and more saleable.—Rye Flour firm, and in fair demand Sales 300 brls. at $3,18 a $3,25. Corn meal very scarce; sales 100 brls. Jersey at $3,12. Grain—A good demand for wheat, but increased receipts; prices are easier. The eastern demand is good; sales 300 bush. at $1,15 a $1 16½; 2500 bush mixed Ohio to arrive soon, $1,03; 3500 ditto fair, on the spot, $1,02; and 1700 ditto good mixed Canadian, in bond, at $1,05.

Buffalo Markets.

BUFFALO, October 7.

There was very little business done in Flour to-day; we hear of sales of about 700 brls. at $4 a $4 6½ for good brands Ohio and Michigan, and $4,12½ for Southern Ohio—holders firm. Grain market—some enquiry for Wheat, at prices below the views of holders, who ask 82c a 83½c for good Ohio; sales Wabash afloat at 83c. Corn in good request, and market firm.

CANADIAN AGRICULTURIST.

"The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, WILLIAM McDOUGALL, } EDITOR, ASSISTANT EDITOR.

VOL. II. TORONTO, NOVEMBER 1850. No. 11.

The Canadian Agriculturist.

Published Monthly, at Toronto, C. W.

TERMS:

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Letters are expected to be post-paid.

THE PROVINCIAL AGRICULTURAL ASSOCIATION.

We observe that in one section of the Province, some misapprehension prevails as to the resources and general utility of this Society.—At a recent meeting of the Agricultural Society held at Guelph, some discussion took place on the question of making the Provincial a pecuniary grant, as is the yearly practice with most County, and several Township Societies in other parts of the country. While some contended for making a grant, others opposed it upon what we conceive to be very insufficient grounds. It was alleged that the Provincial Association had received this year a grant from Parliament of 1000*l*, with an understanding that the Society ought to be otherwise self-supporting. This is certainly a mistake, and we consider it our duty at once to correct it. The Parliamentary grant for 1850 was 600*l*; and the Association received no aid from that source till last year, when 225*l* were voted towards the exhibition held at Kingston, and 250*l* towards enabling the Society to discharge the heavy liabilities incurred at Hamilton, in 1847. Full particulars will be laid before the next meeting of Parliament; but in the mean time, it will be satisfactory to our readers, and the public to be assured, that the Provincial Association is now out of debt, and we are informed, will have something in hand.

It was likewise urged against affording pecuniary support, that as it was improbable that the Association would hold an Exhibition at Guelph, the District could derive no benefit from its operations. We look upon this as a narrow and fallacious objection. The rapid settlement

of our fertile Western country, with a grand trunk railway that will ere long intersect it, with branches that may be subsequently formed, it is impossible to say where the Association may not, in a few years, hold its exhibitions. Railway or no railway, London, at least, must shortly have the Show. And the facilities for reaching Guelph may, in a very few years, be such as to carry the Exhibition there; and we know that the enterprising farmers of the Wellington District, would sustain it in a creditable and efficient manner.

But we would say to our good friends of Waterloo—and indeed to all others similarly situated, that if it were a matter of certainty, that the Society's Exhibition would never take place within your County, it by no means follows that you are cut off from all share in its benefit. Your own breeders won several of the principal prizes this year, at Niagara. Is it not an advantage to have an opportunity of competing upon a large scale, and of showing what excellent breeds of animals you raise, to assembled thousands, gathered from the various points of this great continent? If we cannot carry the exhibition far into the interior—and as a *general* rule it must follow either water or railway communication—visitors, stock and articles from the interior may come to it, and thereby, we maintain, receive some portion, at least, of benefit.

We have been gratified to hear several individuals from the back townships, so speak of the Niagara Exhibition, as to justify the hope that a spirit of improvement and emulation will thereby be kindled in their respective localities. A meeting of the Midland District Agricultural Society was held the other day at Kingston, when it was resolved to devote a considerable sum of money to the purchasing of superior bred animals, that they might eventually overtake their more advanced brethren of the west, in this most important department of the farmer's art. Would these hopeful signs of the times have existed without a Provincial Association, which gathers once a year into one place, visitors and things for exhibition, from all parts of the country? The answer is obvious.

For our own part, we could like to see the Provincial Association, placed in a position as not to need the mere *pecuniary* support of the Agricultural Societies; since we know that none of these Societies have too much for their own legitimate purposes. We trust that the Board of Agriculture, when formed, will receive a sufficient government grant, to enable it to sustain in a state of increasing efficiency, the Provincial Association; and to hold frequent communication with, and publish the proceedings of all the Societies in the upper section of the united Province. Nothing is more urgently required among us as the cultivators of a rich and extensive soil than a common bond of unity—a centralization of effort; and this such an organization is admirably calculated to supply.—A Board of Agriculture conscientiously and energetically pursuing its patriotic duty, that of helping forward the great industrial interests of *all sections* of the Province, and of holding communication with similar agencies in various parts of the world, could not fail to attract to this country that capital and intelligence which fail to find, under existing circumstances, profitable employment in the Parent State, and which we here so greatly need. In the adoption and prosecution of all plans for advancing a country's welfare, people should study to take a just, if not a generous view. For no improvement can be introduced in any department of human industry in a particular locality, but what must become ultimately a common good to the whole community. With these views, and in this spirit, we advocate the claims of the Provincial Association.

In drawing these few remarks to a close, we earnestly request the attention of our readers, particularly such as have had experience in the management of Societies, to the subject of an amended agricultural Statute. The complaints against the working of the present law are many and loud. Several County Societies are almost defunct. This is an evil which requires a prompt and vigorous remedy. We shall be happy to be made acquainted with the views and wishes of a larger portion of our readers than have hitherto communicated with us, in relation to the amended Bill, which was to have been brought before the last session of Parliament. It is most desirable, if possible, to have *united* action upon this matter. No individual prejudice or supposed sectional interests should be allowed to interfere in the prosecution of an undertaking, which involves a common good. We require a *long pull, and a strong pull, and a pull altogether.*

New Steep for Seeds.—"La Presse," of Paris, speaks of some marvellous wheat obtained by the Messrs. Dusseau, by steeping the seed in some new preparation, which wheat is destined for the purpose. The magnificence of this grain, both in straw and ear, is represented as having excited universal admiration; and it is expected "to do the greatest honor to French agriculture."—*Gardeners' Chronicle.*

Quantity of Bonedust Applied per Acre.—Lord Duice, of England, it is stated, applies from sixteen to twenty bushels of rough bonedust per acre.—*Agricultural Gazette.*

ON DRAINING, WITH REFERENCE TO FIELD WORK AND ALSO FOR PLANK ROADS.

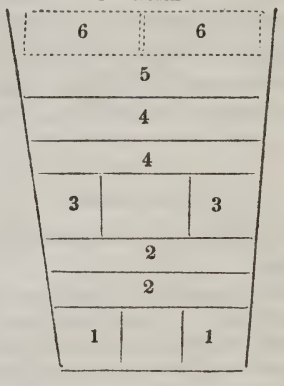
To the Editor of the Agriculturist.

Mr. Editor :—

As the season as now arrived in which Draining operations should be called into requisition, a few practical observations may be useful to many, and not inappropriate at this season for the pages of the *Canadian Agriculturist*.—Herewith I send you a sketch of a section of a drain constructed with split oak timber peculiarly suited for Canada, and especially applicable for our plank roads. Some years ago I sent a copy to the Board of Works, and if it had been adopted, it would have saved 50 per cent in the cost of maintaining the said roads; besides the additional prices that would have been obtained at the late sales; and it must yet be adopted before any effective road can be made. The drain described forms the base of the centre string piece or sleeper; the advantages are many, but chiefly in the increased durability of the road, from its dry and firm state, and preventing the sinking or springing of the sleepers or string pieces; and will also prevent the wasting out of breaches or holes by the accumulated force of torrents in heavy rains, but the greatest advantage and comfort to the public will be in leveling all the present dangerous open ditches, cut at short intervals at right angles with the road, foolishly intended to take off the water, but entirely ineffectual for that object, and which has caused numerous accidents, especially in the night. For field work the drain proposed is preferable to either tile or pipe draining, and somewhat cheaper; the chief advantage is, that the water soon filters through into the drain, consequently will dry a larger area, and thus diminish the outlay. Every owner of a strong loam or stiff clay soil will find, after a few years, however well such land had been drained with pipe or tile, that the discharge is very slow;—this will be the certain consequence of tillage on arable land, especially when ploughed in a wet season. When in England in March last, I inspected work done under my direction 15 years ago, and now in good operation. As a grand result of draining you have doubtless read of the wonderful crops said to have been grown by the Rev. Mr. Huxtable in Dorsetshire, whose farming as been so much discussed at the Tamworth Dinners, and elsewhere; I was in the neighbourhood of the Rev. gentleman's farm at the period alluded to and dined with a large party of respectable farmers at Dorchester.—From what was then stated, there seems to be much exaggeration in the accounts which have reached us respecting this celebrated agriculturist, but it is understood that the Rev. gentleman has married a rich wife and is now entering eagerly into agricultural experiments; having made the transition from the humble Dissenting Minister to the Episcopal Clerical Magistrate, an incongruity of frequent occurrence amongst the more aspiring divines of that church in England but happily unknown on this side the Atlantic. It may be recollected that the character of such men is well described by Cowper as being anomalous in his time.

I am, Sir,
Your obedient servant,
HENRY MOYLE.

Section of a Drain constructed with Split Oak Timber.



The depth of the side 22 inches: width of bottom 12 inches.

REFERENCE,

1 1 Base Shoulders, 4½ inches square, 6 feet long.
2 2 Cross Covers, 2 inches thick, five or six inches wide, care being taken to cover the joints.
3 3 Upper shoulders, having their beamings in the centre of 1 1.
4 4 Cross covers same as 2 2.
5 Rye straw with a thin covering of effete Tan Bark to serve as a filter.
6 6 The centre string pieces, each 12 feet long 2½ inches thick, having the joints opposite corresponding centres, these are sawn timbers.

Observations.—For field work the layer of straw or tan bark will not be necessary, but for a Road Drain it will be needed as a filter, and to prevent the drain being filled with sand by the shaking of the road. The upper shoulder will not be necesasary where there is sufficient fall

to discharge the water freely, but in long levels or nearly so, the water is chiefly taken off by absorbing drains similar to that adopted by Mr. Elkington some years ago, for the introduction of which, it will be recollected the British Parliament voted him one thousand guineas.

If the worn out plank is not much decayed, the construction of the road drain may be expedited by cutting up the old plank for this purpose, it will last many years and prove its utility, this would be best effected by a circular saw of two horse power. The expense of constructing this kind of drain with new materials has been estimated at about £80 per mile.—H. M.

[As our correspondent has recently returned from a visit to England, where he formerly had a long and extensive experience as a practical agriculturist, we should feel obliged if he would favor us with his impressions as to the improvements made in farming in the old country since he left; embracing modes of cropping and culture, manures, implements, &c., with the actual state and prospects of the British farmer, compared with those of the Canadian Farmer.—Ed.]

CLOVER SEED.

To the Editors of the Agriculturist.

Gentlemen:

I believe the quantity of clover seed sown in Upper Canada is yearly increasing, and that it is very desirable that information should be more generally possessed as to the kinds best suited for this climate. English seed cannot always be had; in that case, what kinds rank next?

Some attempts have been made in this neighborhood this season to raise seed; but not having access to machinery it could not be properly cleaned. Can you or any of your correspondents give any information on the subject? Is a first or second crop best? how should it be managed? And is it possible to clean the seed without machinery? and by what means?

I am, Gentlemen,
Your obedient servant,
AN ENQUIRER.

[Our correspondent's enquiries relate to subjects of increasing interest in this country, and we hope some of our readers that have had experience in the matter will communicate the desired information.—Ed.]

AGRICULTURAL SHOW OF THE COUNTY OF YORK.

The Fall Exhibition of this Society was held in Toronto, on October 9. The show of horses was scanty, as is usual at this season of the year; but of cattle, sheep, and pigs, the number was considerable, and the quality good. We noticed several agricultural implements of excellent workmanship, with a few that were imported from England, among them, Croskill's celebrated Clod-crusher the first we have seen on this side the Atlantic; it is a very powerful and useful machine, but too expensive for general use in this country. The show of butter and cheese was very good, and the grain and roots far exceeded our expectations. They were so crowded together in a small room in the Court House, as to appear under every disadvantage. We trust the Society will procure against another exhibition more suitable accommodations. In the evening a considerable number of the members sat down to dinner at Elgie's Hotel, and a very agreeable evening was spent, under the efficient superintendence of Edward W. Thompson Esq., the President of the Society.

HARVESTING AND STORING ROOT CROPS.

Carrots, sugar beets, and mangel wurtzel should be well secured before the occurrence of heavy frosts. They should be perfectly matured, before they are pulled, which may be known by the yellowish color of some of their leaves. If allowed to remain unharvested beyond that time, a new elaboration of juices takes place, and much of the saccharine principle, which is the fattening one, is destroyed.

Turnips and parsnips may be left in the ground until there is danger of freezing, and the latter, if not wanted for winter use, are all the better for remaining unpulled until spring. In this case, all the water must be carefully led away from the beds, otherwise they might rot.

Potatoes, for winter keeping, should never be dug before they are ripe, which may generally be known by the decaying of the vines.

All kinds of culinary roots, after digging, should be protected from the sun, by throwing over them some leaves or straw, and as soon as the dirt attached to them becomes dry, let them be carried, at once, to the cellar or pit where they are to be stored. They should be kept

from the air by putting them in barrels or bins, loosely covered with straw; and it would be still better for them to sift in between the interstices some fine, dry sand, or powdered air-slacked lime. Such as are to be stored in the fields may be put in pits, where the ground is sandy and dry; or they may be piled up in conical or long heaps above the surface, at any hoight required. A coating of straw should be first laid over them, in the manner of thatching the roofs of buildings, in order to shed off the rain. In parts of the country subject to heavy frosts or snow, the heaps should be covered with a layer of earth, sufficiently thick to prevent the roots from freezing; but care must be observed not to expose them, if possible to a temperature above 38 ° or 40 ° F., as they would be liable to heat, grow corky, and probably rot. The earthy covering for winter need not generally be completed until quite late in the season; as, by leaving the straw partially bare, the escape of moisture and heat from the roots will thereby be facilitated, which is all-important, immediately after they are stored. When finally covered over for the winter, a hole should be left at the top of the heap, or several, if the pile be long, in each of which a whisp of straw should be placed, for the escape of moisture and gas. If the ground be stiff and clayey, the heap should be surrounded by a ditch, at least a foot deep, so as to carry off all water that might accumulate from rain or melting snow; otherwise the lowermost portions of the heaps would become wet and spoil.—*American Agriculturist.*

SOLON ROBINSON'T VISIT,

We take the following extract from a letter of the "Agricultural Traveller" in the October number of the American *Agriculturist*. His visit to Canada was so brief that he did not see the best evidences of our agricultural capabilities. With regard to the plough, if Mr. Robinson will *show* us a yankee plough that will do better work in our soil than those "in common use here," it would convince us better than any "argument," which we admit is now "thrown away."

The agricultural capabilities of the district around Hamilton, and on westward towards London and upon Grand River, are probably equal to any tract of the same extent upon this continent; and I believe there are some very good farmers; but there is, upon the whole, a very great lack of that enterprising spirit which alone can bring a rich soil into a high state of culture and productiveness.

On Thursday afternoon, August 15th, I left Hamilton, and reached Toronto in four hours, run close along the north shore of the lake, where a good many flourishing farms are to be seen, if we may judge by what I have always considered a good sign, that is, good substantial barns.

Toronto is also situated upon a bay, though not back from the shore like Hamilton. One of the most prominent objects in approaching the city is the Lunatic Asylum, and next the extensive commons lying waste in front of it, though not quite so worthless to the world as the barracks and their occupants, also seen in the same view. What a number of persons might support themselves by cultivating this tract of rich alluvial land now lying idle, or only serving to show off the trappings of the few swords not yet made into pruning hooks aod plough shares, I was disappointed in finding Toronto so much more of a lively, thriving, business place than I expected. The population is about 27,000, which I presume, includes somewhat extensive suburbs. One of the best farming regions of the province lies contiguous, and gives trade and wealth to this city.

By the politeness of Mr. McDougall [assistant] editor and proprietor of the Canadian Agriculturist, I had an opportunity of viewing the farms some ten miles out "Yonge Street." This name is given the continuation of the principal street leading north, in the direction of Lake Simcoe, which is about 37 miles distant. It has been graded and Macadamised upon a straight line, without regard to any obstacle, as creeks or ravines that might intervene, and like a great many similar foolish efforts to make a road straight, going through and over hills, instead of going round them, it has caused a great outlay of money in places where a slight bend would have saved the largest portion. It is a government work, and is kept in repair by tolls. The farms are laid out one fourth of a mile wide and one and a fourth deep; then comes another road, and so on. The strips are called "concessions," and are numbered according to situation. Cross roads, also, run a mile and a fourth apart; so tho whole country is divided into squares of a mile and a quarter. This is an old French fashion, adopted, at first, along the streams for the purpose of giving a greater number of frontings upon the water. In the interior, it certainly is not so perfect a system as the United States have, of mile-square sections and square subdivisions, all numbered by a systematic rule.

Leaving Toronto, we ascend very gradually from the lake, a couple of miles, and then up a low ridge corresponding with the curve of the shore, composed of sand, gravel, and clay, like the present beach. All the soil below the ridge is more spongy than above, though much more sandy. The upper level is a rich clay loam, without hills, though broken by ravines. Portions of it were covered with white pine, and other parts, with hard wood. This was made up of maple, beech, elm, ash, hickory, basswood, butternut, and some other sorts; oaks not being plenty. Farms of 200 acres, with a good comfortable brick house and out buildings, and good barn, and well fenced, and under fair cultivation, averaging 25 bushels of wheat, and 35 or 40 bushels of oats, and 200 of potatoes, will sell for about $50 an acre, along this road, within ten or twenty miles of the city. Corn is only grown for home consumption, and does not probably average much more to the acre, than wheat. The soil here is excellent for grass, but the winters occupy half the year, and are sometimes very severe. I did not see so many cattle as I expected, though I did see a few herds of good-looking cows, and some small flocks of fine sheep. As for horses, I venture the assertion that I can count a greater proportion of good substantial, real serviceable farm horses upon this road than upon any other that I have ever travelled.

I observed here the same scarcity of good orchards, that I have elsewhere. There are a few rather tasty and somewhat ornamental places, but the great portion of them show the owners to be very plain, and probably, comfortable-living farmers, that have not yet heard of "agricultural chemistry," nor "scientific agriculture." Almost all we see, reminds us of Auld-Lang-Syne in farming, such as we were wont to look upon forty years ago, when the old Cary plow used to kick our shins, in Connecticut. The plow in most common use here, is the "Canada Scotch Plough;" and any argument endeavouring to convince these people that there is a better kind, at all, equal to this, is argument thrown away. There are a good many other improvements in agricultural implements and machinery, that are as a sealed book to the Canadian farmers generally, and I fear will continue to be so, during the age of the present non-reading generation.

A gentleman by the name of Hurlburt, of Toronto, has spent a good deal of labor upon a machine to go by steam, to supersede the plough in some cases, and thinks he has now got it so that it will work advantageously. The principle is more like spading than plowing. I hope with all my heart, he may be quite successful. There are more things I might have seen in this part of Canada, and much more that I did see, that I might write about; but as I am only out for a "flight," I must plume my wings and away."

REPORT OF THE EXPERTS ON THE CROPS IN THE COUNTIES OF PRESCOTT AND RUSSELL, 1850.

ADDRESS TO CHAS. P. TREADWELL ESQUIRE.

Sir,—We feel unwonted pleasure in sending you an account of the state of the crops in this county, which we have examined this year. We have found a most luxuriant vegetation every were; and it is on hyperbole to say, respecting the beneficence of the Giver of all good, that "His paths have dropped fatness." Seldom indeed has the labour of the husbandman been so richly rewarded. Whilst acknowledging Him from whom all our mercies are derived, we believe that a more careful system of tillage, and a more general interest in agricultural operations, have contributed to so desirable a result. With some portion of the latter we willingly credit yourself, for your active exertions on behalf of the farming interest, but we would venture to suggest, that the extensive circulation of some practical periodical, devoted to agriculture, would give more effect to your laudable efforts.

We have found grain in general, as to its probable yield per acre, at least 50 per cent, in advance of former average years; while an enormous growth of straw is a generally attendant circumstance. Perhaps an exception may be made as respects late wheat, which is rather too rank to turn out well. We saw some excellent samples of fall wheat, and should decidedly recommend farmers to try a small quantity annually. The ravages of the weevil are of limited extent, though most early wheat has suffered a little. Oats are of surpassing excellency, indeed we know not that any country could produce a better growth. The only draw back to this crop is the smut, which we observed in every field on our travels. Peas are, as a whole, the best we ever saw; and have escaped the mildew better than we could have anticipated for the season. We should decidedly recommend farmers to sow the small early pea in preference to other varieties, as being far more prolific and having less haum. We saw excellent samples of barley and rye; but comparatively little attention is paid to these grains. We think, as a general observation, that farmers might employ a little more seed with beneficial results.

Hay has been seldom equalled, certainly never surpassed, and the quality is good.

We regret that we have not yet examined officially the fall crops; but from the cursory survey we made of them in the summer, we believe that Indian corn will be an average crop, potatoes somewhat above the average, while a unusually small quantity of other roots have been sown. This we regret, as we think this section of country might advantageously multiply the superficial area under this kind of culture.

Allow us to say, in conclusion, that, deeply as this section, and indeed the whole Province, has suffered by Free-Trade measures, we feel convinced that all the substrata of a material prosperity lie within our reach; that improved culture will secure increased returns,

and that it is our own fault is we are not a happy, prosperous, and contented people.

C. M. EVERETT,
JOHN CROSS,
GEORGE WILLICE, } *Experts.*

LETTER OF MR. SHERIFF TREADWELL.

L'ORIGNAL, 10th Sept., 1850.

SIR,—It is with feelings of pleasure and satisfaction that I have perused the Report of Dr. C. M. Everett, and Messrs. George Willice and John Cross, as expeits on the state of crops in this County, and only regret that the meeting of the Agricultural Association should be held at so early a period as to debar us of the opportunity of sending those gentlemen a full account of its proceedings, and of our interesting Cattle-Show and Fair.

Although Mr. Higginson's admirable letter on the establishment of Model Farms in every county has not attracted attention, as well as my own humble suggestions of obta ning from Government, for each County, a grant of £50 for the purchase of Model implements of husbandry, and also a like sum for the purchase of an Agricultural Library. Yet I feel confident that the Agricultural Report of this county, for the last year, has not been without its beneficial results. A spirit of emulation is silently spreading among our farmers, who are now striving to ascertain the greatest quantity of grain and crops a few well managed and cultivated acres are capable of producing.

Last year was a season of uncommon drought, which enabled many persons to clear up pieces of low land, and put them in fine condition to receive the seed, and the extensive fires that over-ran our forest last year have been calculated to induce a large number of individuals to clear up the burnt tracts, and make them fit for the plough, considerable portions of which were put under crop last spring. Under these and other favorable circumstances, there can be no doubt that the agricultural returns of this year will be about double the average of several former. In reference to the manufactories mentioned in my last report, their progress has been steadily onwards, and do doubt others will follow in their train.

I am proud to notice the liberal provision made by our Legislature of placing the products and resources of Canada before the civilized world, at the grand exhibition to be held in London, in May next, under the auspices of its projector. His laudable scheme has caused a spirit of emulation in every quarter of the globe, and will certainly tend to produce the most beneficent results, not only to the British possessions, but to the world at large.

How far the death of two great men, the late Premier of England and the President of the United States of America, which has taken place within the present year, will change the policy of two of the leading nations of the earth, is a matter that none can foresee.—The policy of the late President was, no doubt, for imposing an *ad valorem* rate of duty for Revenue purposes only, irrespective of protection; but it is thought by many, that the course of policy of President Fillmore, and of his cabinet, will be to levy a specific rate of duty, not only for revenue purposes, but also for the protection and encouragement of the manufactures of the United States.

I feel sensible of the correctness of the statement of the Experts, as to the want of circulation, throughout the country, of agricultural journals, but am, at the same time, happy to find here and there copies of the "Cultivators," the "Canadian Agriculturist," and the "Journal of Agriculture," which the farmers seem fond of reading. Works on agriculture are beginning to be sought after, such as Liebeg and Johnson's Agricultural Chemistry, Roger's Scientific Agriculturist, the Farmer's Treasure, and the Farmer's Every Day Book. These and other such works and journals will do much to raise the standing of agricultural education it the County.

During the early part of the season, I drew up a list of queries on agricultural subjects, which I submitted to many of our farmers, and I assure you that they drew forth much interesting and valuable information. I must particularly allude to those signed "A Farmer," which you have not seen; and, as to their author, you will, I think, discover Peter Stirling, Esq., of Caledonia. The answers of John Thompson, Esq., of Nepean; William Edwards, Esquire, of Clarence; Mr. James Scott, of East Hawkesbury; and Messrs. Alfred and James Cass, of Longueil, were also useful and interesting. I thing that a degree of modesty kept many from answering those queries; but, if they have not told us with the pen what they have done, they have with the PLOUGH. Now, that the lumbering square timber business is less carried on in this County than formerly, the attention of our youth is directed to Agriculture, and in a short time this County will, I hope, compete with those in a more favourite climate. Mr. Stirling has suggested the establishment, in each County, of one or more grain stores, for the purchase and sale of the choicest and best sorts of seed grain, garden seeds, hay seeds, &c. &c., and that the public should encourage such establishments by purchasing of them their implements of husbandry, &c. Whilst on this subject I would recommend the republication of Mr. Samuel Steven's excellent letter on the subject of garden seeds, and the cultivation of roots for cattle. I have noticed the progress of agricultural science for some years past, and am happy to find that it is beginning to command that respect to which it is so justly entitled, and I hope that our young men will soon see that wheat can be grown here as cheap and as well as in Wisconsin, and that it will procure gold in return, and thus render it unnecessary to seek for it in California.

I congratulate the people of this County on their obtaining £3,600, (balance of the Government appropriation of 1843,) for aid in constructing the public road from L'Orignal to Bytown. This will cause a land communication between the capitals, and very likely the conveyance of our mail will be on this side of the Ottawa, as in the spring and fall a land conveyance on the other side is perilous and tedious. Among other cheering prospects is the construction of a railroad from Lachine to Prescott, *via* the valleys of the Ottawa and Nation Rivers. A liberal Charter was obtained during the last sitting of the Legislature. It is true, that the Company have their choice of routes, but every man who has studied the matter will see that the one through St. Eustach, crossing at Hawkesbury, and following by L'Orignal and Caledonia Springs, to the Nation, and thence to Prescott, will not only be the most preferable in opening up the waste lands in that region, but likewise by far the most easily constructed; and what to the *Capitalist* is more, yielding the most returns. Our friends in Bytown are not indifferent as to the great benefit to be reaped by them in the construction of a Railroad from there to Prescott, and will soon go to work in earnest, having also obtained the necessary Charter. A junction of the two roads this side of Prescott is, I think, worthy of attention. I hope soon

to see books opened, and stock taken in both. These and similar indications of enterprise, energy, and activity cannot fail to make this, what Providence designed, it, a great and flourishing Country.

CHAS. P. TREADWELL,
President Agricultural Society of Prescott & Russell.

GEORGE BUCKLAND, Esquire,
Secretary Agricultural Association of Upper Canada.

AGRICULTURAL QUERIES AND THEIR ANSWERS.

[The following list of Queries was addressed to the farmers of the United Counties of Prescott & Russell by Mr. Sheriff Treadwell, who takes, as our readers must be aware, a very laudable interest in the promotion of agriculture. We insert three of the replies, which although they have appeared in a local paper, we think deserving a wider circulation, that our farmers in other districts, may be induced to follow so beneficial an example. How much interesting and valuable matter might in this way be collected !] —Ed. Agriculturist.

1. What is the first crop you put on newly cleared hard wood land, and how much seed per acre ?

2. What do you sow for the second crop ?

3. How soon do you seed down new land, and whether in the fall or spring.

4. When you break up meadow or pasture land, say sandy soil, what rotation of crops do you follow, and when is your course completed ?

5. If a loamy soil, what course do you pursue, and with what success ?

6. If a clay soil, state your method of reclaiming it from its natural state, and what rotation of crops you follow ?

7. What quantity of potatoes do you plant per acre ?

8. Do you sow beets, turnips, and carrots ? What quantity of seed do you sow to an acre of each ? What are the kinds you most approve of ? and what is the experience you have derived in their cultivation ?

9. Please state the time of your sowing and planting the different kind of crops ?

10. Do you sow buckwheat either for grain or manure ?

11. Do you use gypsum or guano as a manure, and how do you apply it ? Do you use lime, in what quantity ? Do you make heaps of compost, and do you use muck as a manure either by itself or made into a compost ?

12. Have you ever applied leached or unleached ashes as a manure, in what quantity and on what kinds of soil and with what success ?

13. What is your method of keeping and applying barn yard manure ?

14. What improvement in agriculture do you think can be introduced that has not been tried in our District ?

15. Have you ever cleared heavy clay land with deep vegetable deposits upon it, and what method do you think preferable in reclaiming such lands ?

16. What is your method of getting rid of surplus water ?

17. Have you made any covered drains in this country, and do you make all your ditches with the spade ?

18. Have you used the plough in ditching ?

19. What kind of plough do you prefer ?

20. What kind of cattle do you keep ?

21. Do you use horses or oxen in your farming operations ?

22. What kind of horses do you think best fitted for agricultural purposes in this country ?

23. What kind of sheep do you keep, and what is the greatest quantity of wool produced per head ?

24. What kind of hogs you prefer, and what is your mode of fattening them ?

25. Is there anything peculiar in managing your horses, cattle, sheep, and hogs, and what is that peculiarity ?

26. What kind of fence do you prefer, having stones, cedar, ash, &c., in abundance ?

27. Have you ever tried thorn or any other hedge plant, and with what result ?

28. Do you sow mangle-wurtzle ? What is your experience, have you been successful ?

29. At what time do you plant corn, and on what kind of ground and how prepared ? State the quantity of seed used; your manner of cultivating; time of harvesting and amount of produce ?

30. What kind of harrow do you use ?

31. Do you use the drill plough and harrow for potatoes, corn, &c., or what do you use ?

32. Do you grow flax or hemp, either for seed or for manufacturing into cloth or ropes ?

33. What is the method of growing timothy and clover seed for market ?

34. Do you grow a large quantity of white beans, or any other beans, and what is your manner of planting them; do you feed your sheep with white beans ?

35. Do you grow pumpkins or squashes ?

36. What crops do you consider most neglected that might be grown in this County with advantage to the farmer ?

37. Have you an orchard ? What kinds of trees does it produce; do you cultivate the ground occupied by the trees, or do you allow it to remain in grass ?

38. Do you keep bees, and have they been profitable What do you sow to provide them with food ?

39. Do you keep a dairy for butter or cheese, and do you grow roots for your cows: what amount of butter and cheese have you made for each cow ? State particulars in reference to both.

40. What do you grow with most advantage on your farm ?

41. What depth do you plough your land: do you not prefer deep ploughing ?

42. Do you sow fall wheat or rye, and at what time: what quantity of seed do you sow per acre;

43. Do you ever plough in your grain sown on light soil instead of harrowing it ?

ANSWERS TO QUERIES BY JOHN THOMPSON ESQ., OF NEPEAN, PRESIDENT OF DALHOUSIE AGRICULTURAL SOCIETY.

1. Fall wheat, one and one-third bushels per acre.
2. Seed down with timothy and clover.
3. 1st crop, in spring.
4. 1st oats; 2nd, potatoes or turnips; 3rd, barley and seed down; course completed 3rd year.
5. Same as No. 4.
6. Summer-fallow; sow with fall wheat and seed down.
7. 20 bush. in drills, and 12 bush. in hills.
8. I approve of Swedish, and have grown 500 bushels per acre.
9. I sow as soon as the land is in a fit state.
10. No.
11. I have sowed gypsum on Hay and oats; lime, 100 bushels per acre, muck or compost.
12. No.
13. Draw it out of the yard and pile in the fields.
14. Subsoil ploughing.
15. Yes. I drain well, subsoil plough it, and sow it with fall wheat.
16. Draining.
17. Yes. I make them all with the spade.
18. No.
19. Wilkie's or Fleck's Iron plough.
20. A cross between Ayrshire and Durham.
21. Both, but principally horses.
22. Clydesdale horses.
23. Leicester; 7 or 8 lbs per head.
24. Berkshire; steamed potatoes mixed with crushed grain, and a month with corn or pease before killing.
25. I have no particular method of keeping my cattle.
26. Cedar log.
27. No.
28. I have sowed it, but have not been successful.
29. 15th to 20th May; on light gravelly soil, well manured, and drilled in rows 3 feet apart; 5 quart per acre; ploughed between and hoed 3 times; latter end September; about 50 bushels per acre.
30. Berrickshire.
31. Yes; I use both.
32. No.
33. I have never grown any for market.
34. I grow white beans, planted in hills, 2 feet apart; I do not feed them to sheep.
35. I grow them amongst my Indian corn.
36. I think flax might be grown with advantage to the farmer.
37. Yes; Apple; cultivate for 5 or 6 years; then seed down.
38. No.
40. Wheat, potatoes, and swedish turnips.
41. About 6 inches, but I prefer deep ploughing.
42. I sow fall wheat about 20th August; 2 bushels per acre; yield about 35 or 40 bushels.
43. Yes.

MR. ALFRED CASS' ANSWERS.

No. 1. Wheat and turnips; and the quantity put on new land not to exceed a bushel and a quarter per acre.
2. Either oats or wheat.
3. The third year I generally seed down in the spring on the snow.
4. I generally plough up meadow or pasture land in July, if a summer-fallow I put wheat, and if fall I put potatoes and manure. I generally follow the first crop with oats; wheat, if summer-fallow, then potatoes, wheat.
5. Similar courses to the above.
6. I have no such land.
7. From 16 to 20 bushels, if in drills.
8. Yes. I sow 2lbs of each kind per acre. Yellow swedish turnip and sugar beet. I find them generally useful for horned cattle.
9. I put the seed in the ground as soon as it is properly prepared to receive it, with the exception of Black sea wheat, which I sow about the 25th of May. The general time of planting corn is about the 10th May. The bald wheat I would sow as early as you can in the spring.
10. I would only sow it for manure.
11. I have had no experience in this.
12. I have never applied leached ashes.
13. Having it as little exposed to the weather as possible.
14. They are almost too numerous to mention but especially would I recommend the introduction of the subsoil plough.
15. I have not.
16. I consider that surplus water requires an open ditch. Covered drains are good where the land is springy.
17. I have no covered drains. I make all my ditches with a plough and spade.
18. I have.
19. I prefer the Scotch plough.
20. An amalgamation of almost every kind which has been introduced into the country.
21. Horses.
22. Canadian horses:
23. I have a mixture of different kinds of sheep; they average about 3lbs per head.
24. Berkshire; commence about 1st August, Indian corn and pease ground I consider the best.
25. I use the general mode of managing my cattle.
26. I generally prefer cedar or ash. I consider a stone fence good when the land will admit of it.
Answer to 27 and 28—I have not.
29. Answered in the 9th. Generally on sandy or gravelly soil, well manured. Corn about a quarter of a bushel per acre. Rows straight, three feet apart; I use the cultivator, instead of the hoe; generally very late in the fall, after all the other harvesting is done; average yield of corn is from 40 to 50 bushels per acre; 100 bushels have been raised.
30. Scotch Harrow.
31. I do.
32. I grow neither.
33. Having it as free as possible from other grass, and reaping it with a sickle.
34. A quarter of an acre, about a foot apart and I find them the best thing for sheep I can feed.
35. I do.
36. The Cultivation of Orchards.
37. I have. The Common seedlings, but we are grafting some of superior quality. I do.
38. No.
39. I do. 150 lbs. of cheese per cow.
40. Indian corn has been the most profitable grain raised for some years past.
41. I plough, in general, to the depth of 8 inches.
42. I sow fall rye 1st September, a bushel and a quarter or a bushel and a half per acre.
43. I do upon light soil, and consider it preferable.

September 1st, 1850.

MR. JAMES CASS' ANSWERS.

To 1, 2, and 3 no answers returned.

4. I sow oats first, then plant it with corn or potatoes, next sow wheat, then seed down with oats which makes the fourth year.

5. I have no loamy soil.

6. I sow pease first, then pass the fire over it, and sow wheat, and lastly seed down with oats,

7. Twenty-five bushels.

8. I sow turnips and beets; 2lbs per acre of each. Yellow swedish turnips and sugar beets. The beet I consider superior to any other roots we now raise.

9. If early, I sow Black Sea wheat about the 15th of April; and, if late, about the 20th May; potatoes I plant the first of May; corn, 10th May; oats about the 20th April; pease and barley the same time.

10. I do not.

11. I do not. Lime I use about 20 bushels per acre. I use manure by itself in the spring, well fermented. I use muck in the fall, applied by itself, and also for compost.

12.—I have use unleached ashes by themselves at the rate of 20 bushels per acre on slaty soil; every bushel applied on corn I value at the rate of 5s; I apply it after the first hoeing.

13. I keep it under cover, free from rains.

14. I would especially recommend farmers to raise more of the root kind in general, and to make more compost manure for the top-coating of meadows.

15. I have. First, let it be well drained, then pass the fire over it, plough it, and in the spring put crops on it; next pass the fire over it for three succeeding years.

16. By covered drains.

17. I make all drains and ditches with the spade.

18. I have.

19. Iron Plough.

20. The common cattle of the country.

21. Horses.

22. Canadian horses.

23. Mixed; 6 lb. per head.

24. Berkshire, and grass fed; mixed potatoes and provender, boiled together, with a little salt and charcoal.

25. To keep each sort by itself; no more than four hogs by themselves; I would not keep more than 25 sheep in a flock; males and females; I do not permit the ram to co-habit with the flock until the 20th November.

26. Stone for out-fences, and cedar for cross-fences.

27. I have not.

28. No answer.

29. Answered in the 9th. I put a quarter of a bushel per acre of Corn; rows straight; 3 feet apart.

30 Square double harrow.

31 Use both.

32. and 33. No answers.

34. A small quantity for sheep, of white beans.

35. I do.

36. Answered in the 14th query.

37. I have; apples, cherries, and plumbs; I till it.

38. No answer.

39. I make both cheese and butter; 150 lbs of cheese per cow.

40. Wheat.

41. 13 inches for my soil.

42. I do not sow either.

43. I always plough in wheat and wheat and pease, harrowing the ground afterwards.

September 1st, 1850.

THE CULTIVATION AND USES OF CHICORY.

[Some arguing has been made of late respecting the introduction of this plant, for field culture in Canada. We could like much to see the experiment fairly made, and subjoin the following article from *Morton's Cyclopedia of Agriculture.*]

CHICORY, or SOCCORY, is a perennial plant which is found wild in many parts of England, and various countries of Europe possessing a similar temperature. It has a similar root in shape to the parsnip, or white carrot, but smaller, growing from one or two feet in the ground, and in some instances sending its fibres downwards for four or five feet. The plant grows in form of a lettuce; bearing, after the first year, blue flowers upon a rough leafy stem, which shoots up from one to six feet high. Chicory has long been extensively cultivated on the Continent as an herbage and pasturage plant, and is much used as a salad; while in Flanders and Germany, the roots are in great request, as a substitute for coffee is prepared from them. After being introduced into the field culture in this kingdom, by Arthur Young, A. D. 1780, it was grown principally for sheep-feed, and found to be very profitable, as it will flourish upon almost any kind of land, and probably keep more sheep per acre, during the early summer months, than any other kind of herbage plant.—Lucerne requires a rich soil, or its cultivation will not be accompanied with much advantage; but chicory has been found to be abundantly profitable upon poor sandy lands, and soils which were weak and wanted rest, as well as on richer and more productive soils. It also thrives on fen and pea soils; and will last for seven or eight years, yielding several cuttings during each year, though the full crop is not obtained until the second year.

When it is intended to grow chicory for grazing purposes, the seed is usually sown broadcast in April, upon land that has been dug or deeply ploughed, from seven to twelve lbs. per acre; and growing in this manner, it forms a considerable proportion of many of the best meadows in the south of France, and in Lombardy. The best mode of culture, however, for *a fodder or herbage crop*, is as follows:—Prepare the soil, by thorough cleansing and pulverization, as early in the spring as the season will admit; apply a good coat of partially decayed fold-yard dung, and drill in the seed during March, four lbs. per acre, at about nine-inch intervals between the rows. When the plants are about five inches in height, carefully hoe them, and single out, leaving them about six inches apart, after the usual method in turnip culture—that is, by boys following the hoers. Some recommend that the seeds be sown in a bed, and when the plants are fit for transplanting—which will be when about five inches high—they are to be set out in rows nine inches apart, and at six-inch intervals from plant to plant in the rows. In either case, the land must be kept clean, and well hoed, particularly in the first season; ordinary attention will afterwards suffice, and the crop will continue luxuriant and profitable for five years at least, and frequently from eight to ten. When the plants begin to exhibit symptoms of failure, the ground should be cleared of the roots, another course of cropping pursued for a few years, and it may then be again sown or planted with chicory.

Like all other crops of a similar character, chicory will never attain to perfection, or even a full and profitable growth, if the plants are allowed to stand too closely together. The stem is branched, and clothed

on all sides with leaves, up to its very top, so that to be confined for room, would be in every way prejudicial to the healthy development of the plant; the roots would grow thin and tapering, and produce weak innutritious stems; whereas, if allowed full scope on good soils, they will rise to six or eight feet in height, having proportionate bulk and foliage, and yielding a very rich and nutritive milky juice.

Chicory is of far more value to mow and consume in hovel or byre, than to graze. It has been much used as a pasturage for sheep, and found to be very useful in this respect, for a small extent of chicory ground will fatten a large number of sheep; but then it is only the radical leaves shooting up close to the ground which are continually cropped by the sheep, the stalks not affording them proper nourishment. The best way is, to let the plant reach its full growth, the full succulence being retained until the flower-buds appear, in which state (not being permitted to flower) it has attained its greatest perfection; it may then be cut off near the ground, and will be eaten by all kinds of stock with the greatest relish and benefit.

As it is a plant of such speedy growth, and in all seasons, wet or dry, it cannot be too strongly recommended for general use, and more particularly for the smaller occupiers. Cow-keepers would do well to cultivate it, and cottagers ought by all means to employ it in a double manner.

Chicory is now grown in many parts of England, chiefly for the sake of preparing a "substitute for coffee" from the root—a practice which has existed on the Continent for nearly seventy years; "and of all plants," says Von Thaer, "which have been proposed as substitutes for coffee, and which, when roasted and steeped in boiling water, yielded an infusion resembling coffee, chicory is the only one which has maintained its ground."

This plant has been considered to like a dry sandy soil the best, but has been proved to grow the best (as regards its *roots*) upon a loamy soil, with a clayey subsoil, dry, deep, and rich; in fact, chicory very much resembles the carrot, and the mode of cultivating one is much like that of the other.

In preparing the land for *a root crop*, deep-ploughing is recommended; but, unless the soil is very deep, it is probable that subsoil-ploughing will answer better. The surface must be well worked; indeed, it cannot be reduced to too fine a mould. As the plants are a long time in coming up, generally five or six weeks from the time of sowing the seed, it is necessary that the land should be very clean, or the weeds (particularly chickenweed) are liable to overtop and smother the young plants. The time of sowing varies in different districts; in the midland and eastern counties, the second or third week in May is considered best, for if sown earlier (when cultivating for the root), many of the plants will run to seed; in which case they are called "runners," or "trumpeters," and must be carefully dug out and destroyed, when the time for taking up has arrived; because, if allowed to become mixed with the bulk, they will spoil the sample. The best crops have been obtained when the seed has been sown broadcast; but the preference is usually given to drilling, the crop being more easily hoed and cleansed.—The rows are generally from nine to twelve inches apart; and about three or four lbs. of seed per acre is the quantity used. Most of the cultivators of chicory single out the plants so as to leave spaces between them in the rows, each about six or eight inches long; but there are many who do not do this, fancying that four or five small plants produce more weight of root than one large plant; the expediency of this, however, is very questionable, as it does not allow of the land being nearly so well cleaned as when the practice of singling is adopted.

In October or November, the work of taking up may be commenced, and continued during the winter (if the crop cannot be previously secured), until it is finished. Although the roots penetrate a long way downwards, they become too thin below fourteen or fifteen inches to be useful, and the utmost care is also required in order to get up that portion of the root which will prove profitable. In some cases, chicory has been ploughed up, about twelve inches deep, with a strong cast-iron plough drawn by six horses; having men to fork each furrow to pieces, with common potato forks, before a second furrow is ploughed upon it, and women and children, following to pick up the roots and cut off the tops. But the best method is found to be that of digging up the roots with double-pronged, strongly made, iron forks, the blades being about fourteen inches in length, and each fork, with shaft and handle complete, weighing about eight lbs. The plan of ploughing is liable to bring too much of the sub-soil to the surface, and costs quite as much, if not more, than digging.—The advantage which is looked for in ploughing is, to insure getting the roots up from a greater depth than can be done by digging, as a great number break off about eight or nine inches long, unless a boy is employed to assist the diggers, and is very carefully to pull the top at the precise time that the man presses the root upward with his fork.

When dug, the tops should be neatly cut off, and the roots conveyed to the washing-house to be washed clean. Sometimes they are covered down in pits or graves, as a matter of convenience, but, generally speaking, they are taken to the washing-house immediately after been taken up. They are then cut into small pieces by a turnip cutter, or by hand, the object being to have the pieces of as uniform a size as possible. The slices are then dried in a kiln; this process wasting the chicory from 75 to 80 per cent. It is then marketable, and is usually sold to the drysalters and grocers, who roast and grind it as they do coffee. The amount of profit attending the cultivation of chicory for its roots, is very uncertain—the crop varying from eight to sixteen tons per acre. The only record we have seen, stated £19 15s. 6d. as the cost, and £22 10s. as the return per acre, in the instance recorded. One to one and a quarter tons of roots (when *dried*) is an average crop. The price at market during the past year has been £20 to £22 per ton. The cost of manufacturing may be estimated £4 10s. to £5 per acre.

The leaves are an excellent fodder for cattle of all kinds, which usually devour them with avidity; but (as in the case of the tops of turnips, which are dragged up and carted from the land) when chicory is grown for the sake of its roots, more of the tops gets ploughed in for manure than consumed. Some growers have lately been using the leaves as a substitute for woad, or rather as an adulterator of it; but how far they will answer the purpose, it is permature to say. The leaves are also *said* to be used for adulterating tobacco.

The root, when roasted and ground (after being dried in a kiln, as mentioned above), is considered to be an admirable substitute for coffee; and as an addition—say one-third of chicory to two-thirds of coffee—to be an improvement to all sorts. It is more especially employed, however, to mix with colonial coffee; which fact was satisfactorily proved to the commissioners of excise, a few years ago, when it was shewn, that if the consumption of chicory were prohibited, less colonial coffee would be consumed. It is also said to be used

for the adulteration of tobacco and of porter. Medical men allow it to be healthful, and in some case prescribe it for a morning beverage.

Chicory, both on weak and strong soils, requires to be thoroughly well supplied with manure, or it will materially impoverish the soil; but the principal disadvantage attending its cultivation is, that when once in the land, it is as difficult to eradicate as horseradish. Although the leaves are rather tender, and do not require by any means a severe frost to cut them off level with the ground, being, therefore, unsuitable for a cold climate, the roots—which are very full of a milky juice, that oozes out freely whereever they are broken or cut, are exceedingly bitter tasted in their raw state—are very hardy; and every small particle left in the soil will grow afresh, and cause much trouble and annoyance with the after crops.

VALUE OF A LITTLE CHEMICAL KNOWLEDGE.

The last number of the American Farmer contains an interesting statement of the results of an experiment on the farm of the Hon. Reverdy Johnson, near Baltimore. The farm recently purchased by Mr. Johnson, was completely exhausted, and the great question of the proprietor, was this, what shall be applied to it in order to bring it to a state of fertility. In order to answer this question, common sense would dictate the Yankee rule of asking another question first, viz:—What is lacking in the soil, which causes its present barren condition? In order to ascertain this, chemistry must be called in. An analysis must be made.—In order to illustrate the practical operation of this, we will extract from the communication, the following statements. The land, originally good, had been impoverished by a long course of husbandry. The soil contains a very large proportion of iron. So complete was its exhaustion, that when I first saw it, all the vegetable matters growing upon the two hundred acres of cleared land, (including the briars, sassafras, and other bushes,) carefully collected would have been insufficient for the manufacture of one four horse load of barn-yard manure. The field selected for experiment contains ten acres, embracing the slopes of two hills, and a small valley intersecting it diagonally. It was at that time in corn, and did not produce *one peck* of corn to the acre, although it had been cultivated in the usual manner, and with ordinary care, and the season had not been below the average of seven year.

An analysis of the soil was made by Dr. Stewart.—He found it to contain the following ingredients:

Sand and bases insoluble	71.20
Lime	0.30
Magnesia	0.40
Manganese	0.10
Potash	0.23
Water and organic matter	10.07
Phosphoric acid, none	0.00
Iron and alumine	17.70
	100.00

The doctor remarks that from this analysis the soil contains as much lime and magnesia as could be furnished by a dressing of one hundred and fifty bushels per acre. An uncommon quantity of iron. As there was a lack of phosphates, he recommended a preparation composed of biphosphate of lime. This is obtained by dissolving bones in sulphuris acid—bone dust is similar in its effects—a part of the lime being combined with carbonic instead of sulphuric acid.

The corn was accordingly cut off and removed, the field ploughed and harrowed, and laid off into sixteen and one-half feet lands. The preparation was then scattered regularly over it, costing, all told, $10 per acre. One and a quarter bushels of Mediterranean wheat was then sown upon each acre, and harrowed in. No barn-yard or other manure was used. The yield was more than *twenty-nine bushels per acre!*

Isn't this a triumph of science, as applied practically to the renovation of exhausted land?—*Maine Farmer.*

Advantages of Drilling Wheat.—The advantages claimed for drill culture, in the Transactions of the New-York State Agricultural Society, are as follows:—

1. *A Saving of Seed.*—Five pecks of wheat drilled in is equal to two bushels sowed broadcast; every kernel is neatly covered at a uniform depth.

2. *A Saving of Labor.*—Any person that can manage a team can complete, in the neatest manner, from ten to fifteen acres per day.

3 *An Increase of Crop.*—Small ridges of earth are left between the rows of wheat, which, by the action of the frost, slides down and covers the roots, thereby preventing "winter killing." Light and heat are admitted between the rows and prevent injury by rust. A vigorous growth is given to the young plant, and its position in a a constantly moist place, prevents injury from drouth.

The *Essex Herald* has a paragraph enough to bring tears into the eyes. "Mr. Circuit, a farmer of East Ham, near London, has at the present time upwards of six hundred people—men, boys, and women—employed in pulling, carting, and peeling onions for pickling; and they will thus be engaged for two months. He pays wages to the amount of £200 weekly, and the cost of each acre of onions averages £100. This includes preparing the ground, seed, weeding, gathering, and peeling. Last year he sowed nearly a ton of onion seed The onions are pulled by women, the rod, and skinned by the gallon. At this season he makes about 1,500 different payments daily, as the people employed receive their money three or fourtimes a day."

Roguery in Guano—Quantity Imported into Great Britain in 1849.—The amount of Peruvian guano imported into England during the year 1849, according to parliamentary return was 73,567 tons. But, large as this amount is, the consumption was more than three times that quantity of *quasi guano.* The uninitiated and simple-minded may inquire "How is this? notwithstanding there were no accumulated stocks on hand. The Gardeners' Chronicle solves this necromancy, by stating that they have the names of ten firms in London, alone, each of which, is extensively engaged in the *manufacture of guano.* One of these takes 30 *tons of loam per week,* which comes into their laboratory, simple earth, but goes out genuine guano. Such is the gullibility of the Old World. Is there any of the same kind in the New?

Horticulture

DIRECTIONS FOR TRANSPLANTING AND MANAGING APPLE TREES, TILL THEY ARRIVE AT A BEARING STATE.

(*From the Lanark Observer.*)

In giving a few brief directions, the result of my own observation and experience, on the transplanting and subsequent management of Apple Trees, I will commence, in the first place, with the distance they ought to be kept apart. I consider about twenty feet distance, each way, quite sufficient for a Kitchen, or close bearing Orchard. The holes for the reception of the trees, I make from five to six feet in diameter, and two spades deep—say, eighteen or twenty inches—nine or ten inches of the surface soil, if good, to be put in a heap by itself, and the subsoil in a heap also, not to be put in again, but scattered on the surface after the tree is planted. Put in a larger quantity than of the subsoil, of well-fermented manure, or rich mould from a field of summer fallow, or newly cleared land; then put in the surface soil first taken out of the hole, and then plant your tree. Shallow planting is of course recommended—say, one inch deeper than in the Nursery bed. The roots should be pared on the under side with a slope, to take away all ragged wood, and all cross roots. When the roots are so trimmed, a rush of new roots will grow from the surface of the slope, and the growth of the tree will be promoted by that means. When there are a great deal of small roots together, under the surface roots, I prefer cutting them short, rather than planting them in a warped state; the extremity of the roots should be kept up, corresponding to the natural slope from the trunk or base of the tree. In transplanting, two persons can perform it to better advantage than one; any young person with do to hold the tree in a perpendicular position, which will very much facilitate the work, If the ground root be long, cut it off with a slope, then hold up the ends of the roots with one hand, spread, and cover the under roots with the other, going round the tree, laying one layer of roots after another, and packing them well with fine mould, tho' not pressing too hard, for fear of straining the roots.—When the surface roots are bedded, put a few spadefuls of good earth round the extremity of the roots, then cover up. Now is the time to give your tree the set you want, and as the prevailing winds in this latitude, during the summer, are from the west, I would decline it a little in that direction, holding tree steady with one hand, and pressing the earth with the foot, commencing at the extremity of the roots, and proceeding towards the tree. Press gently at first, rather repeating the operation two or three times, so as to sink all equally. When the tree is planted, it should be two or three inches above the level of the surrounding surface, to allow the whole mass to sink, as it will do, after the first winter's snows and rains.

Trees newly set out would be much benefitted the first summer, by the application of two inches deep of well rotted dung, for about 18 inches around their roots. They should also be frequently well watered, during the warm weather about sun-set, or after the heat of the day, and always making a point of beginning at the top or head of the tree; I use a watering pail for that purpose, which answers very well. As the top of the tree is of course deprived of its usual quantity of sap, by the trimming and shortening of the roots, I would therefore recommend what is generally termed "pruning in," that is, taking a few inches off the ends of the branches. Branches should never be lopped close off, till the tree is in a vigorous state of growth, and the wounds heal quickly, when covered with a piece of grafting wax. The following is the composition I use for that purpose, viz.—Four parts of rosin, two parts of bees' wax, and one part of tallow, melted together; when cold enough not to run through spread with a brush on the cheapest kind of Cotton cloth, and cut in squares, according to the size of the wounds.

As to the proper time of pruning, there is a great diversity of opinion; I consider the best time to be from the 20th of June till the 10th of July. As that is the time of the fall growth commences, the sap naturally flows to the outside of the tree, and the limbs being pared off close to the trunk with a sharp knive, they soon heal over, and by this method the growth and health of the tree are insured. Young trees should be washed, every spring at least, with soap suds, or unleached ashes and water mixed together, and applied to the main stem of the tree, with a brush, or a piece of woolen cloth fastened on to a stick, so as to insure the safety of the hands. They ley loosens the moss, and kills any larvæ of insects that may be deposited behind the rough bark.

Frequent top dressings, particularly in spring, are of much benefit to a young orchard, as they keep the ground cool and moist in the summer season, and so promote the growth of the trees; less watering is thus required. Rough manure from the hog pen, the straw being well saturated with urine, is as good a top-dressing for Apple trees as anything I know of. Unleached ashes, say, one peck round each tree, will kill all insects

and larvæ under it. Unfermented manure and ashes should be kept a few inches from the stock of the tree, otherwise they will have a tendency to injure the bark, and may ultimately kill it.

Before the winter sets in, all rubbish, such as decayed leaves, stubbles, &c., should be removed from about the trees, to prevent mice from nestling: but to make sure, the first few inches of snow, that is likely to lie, should be well trampled for at least a foot round each plant, as the mice travel the whole winter under the snow in search of food, and are apt to prey on the bark of young trees. One winter I neglected to trample a row next to a grass plot, and almost the whole, about twenty, were destroyed in this way, the bark being peeled completely round the stem, and the upward passage of the sap consequently cut off.

With regard to the soils most suitable for the Apple, I take the following from the *British American Cultivator*:—"The Apple will succeed in any soil, except a quick sand, or a cold clay, if the ground is kept under cultivation, and manured. Those soils that possess a very considerable degree of humidity, but are not absolutely wet, suit the Apple very well,—whereas they would be destructive to the Pear.

Hoping these few remarks may be of benefit to the community, I will conclude by remarking, that if the bark seems to be very much discolored by attacks of the Borer, and laying of their eggs, at any time, open the bark a little with the point of your knife; if they have been at work and cannot be found, pare away the dead bark: if any holes are made, plug them up with a piece of soap, and they will not trouble that place any more. If grafting wax is not at hand any time it is required, newly dropped cow-dung is a good substitute.

GEORGE BLAIR.

Dalhousie, October, 1850.

Cut Worms.—These pests are most effectually destroyed at the north, by deeply plowing the fields, just as the winter is setting in. They have by this time settled into their snug winter quarters, far below the surface, and by throwing them upon or near the surface, where the pelting storms and severe frosts will catch them, when too much chilled to seek anew for a hiding place, large quantities of them will be destroyed.

Colonel Fluker, of Louisiana, says, for the cotton crop of that state, they are most effectually exterminated by plowing deep about the 1st of April, just before planting the cotton. In this way, millions have been destroyed, and his own fields have been saved from their ravages, while others around him have been greatly impaired by them.—*American Agriculturist.*

THE GOOSEBERRY.

Fom the Montreal Witness.

In a late number you have a short article on the Gooseberry, which has reminded me of some remarks on that fruit which I have long intended to send you.

The great drawbacks to the cultivation of this delicious and very wholesome and useful fruit, are the mildew, and the heat of the Summer; which latter in some soils affect the bushes very much, as the English gooseberry is not suited to hot, dry Summers.

Some varieties stand the climate better, and are less liable to mildew than others. Mulching may also to a certain extent prove a benefit of both the evils. But more, in my opinion, depends on soil and aspect as regards the mildew, than on variety.

Having cultivated and paid considerable attention to gooseberries for eighteen years, I will give some of the results of my experience. At Windsor, where I first cultivated them, the fruit in one garden was perfectly free from mildew, while in another garden, at the opposite end of the house, it was usually more or less mildewed. For the first four years after I removed here, my gooseberries were not fit to eat, from excessive mildew; they were planted in a garden surrounded by a high, close board fence on three sides, and the house on the fourth. Having seen in an Ohio paper, that a gentleman there always had fine fruit by planting on the top of a knoll, or rising ground where they had a free circulation of air, I concluded that mine mildewed from the want of a circulation of air, but having no rising ground near, I took up and planted my bushes outside my garden, on a piece of ground slightly elevated, but where there was nothing to obstruct the wind. The result has justified expectations, as, since then I have never had a mildewed gooseberry.

I raised about five hundred seedling gooseberries three years ago, the greater part of which came into bearing this season, these I planted out pretty closely on the opposite side of a garden walk from my old plantation, but the young shoots as well as berries, were in general badly mildewed. The soil is exactly the same where they are planted as where the others are, but the bed was bounded on one side by an asparagus bed and on another by a row of close planted currant bushes, which had grown to a large size, and were partly shaded by some large peach, plum and apple trees.—I have no doubt, therefore, the mildew on them was caused by the want of a sufficient circulation of air, and where it once begins, it spreads rapidly to all the bushes contiguous, though in this case it did not cross the walk, a distance of only eight feet. The shade of trees does not cause the mildew provided the limbs are high enough from the ground so as not to prevent a due circulation of air. As no rule can be given in what kind of soil or situation to plant, I would advise planting a few bushes in every different aspect of the garden, selecting as much as possible the most open and airy places; probably it will be found, if the garden is large, that in some place they would be free from mildew. In small low lying gardens, enclosed with high fences, and where many trees and tall growing vegetables are planted there would not be much probability of obtaining good fruit, unless the soil or climate is peculiarly adapted for it.

I am, however, in hopes that improved varieties of the wild gooseberry, indigenous to the country, or hybrids between these and the English, will take the place of the latter, and that eventually we may have as fine gooseberries as the English and perfectly adapted to the climate. In this part of the country there are

several varieties and subvarieties of the native gooseberry. One is a very tall strong growing kind, the branches bearing strong prickles. The fruit ripens late, of medium size, dull red, insipid and covered with such strong prickles, that it is almost impossible to eat it. Another is a strong growing bush also, though the branches are long and pendant, not being able to support their own weight when in fruit. The branches are free from prickles, and the fruit is a very small, smooth red berry, perfectly worthless as it falls off as soon as ripe. There is a subvariety of this last, the fruit of which is larger and has now and then a small prickle on it, as also a few on the bush, the fruit does not fall off when ripe, but the flavor is poor. The Houghton gooseberry (though it has not yet fruited with me) is evidently, by the leaf, either an improved variety of these last two, or a hybrid between them and the English. There is, however, a difficulty in procuring hybrids between the English and the wild gooseberry, owing to the former flowering a little earlier than the latter. Still it is evident that it does take place sometimes, as one of my 500 seedlings that bore this year is decidedly a hybrid from the first or prickly variety described, there being quite a number of bushes of the latter growing wild in different parts of my lawn not far distant from the garden.

The growth of the seedling is very closely allied to its wild parent, being covered with similar prickles, and growing very tall and straight, its young shoots being about four times the length of any of the other seedlings. The leaf is quite different from either of its parents, and the fruit is about the same size as the wild, of a lively red color, and covered with strong hairs instead of prickles. The flavor, as far as I can judge, there being only six berries on the bush, is very fair, and it ripens at the same time as the English, or a fortnight before the wild.

Having apparently two hybrids now, the Houghton and my seedling, it appears to me the way is open for a rapid improvement, and the obtaining varieties probably equal to if not better than the English, of strong healthy constitutions perfectly free from mildew and adapted to the climate. I intend planting these kinds, beside some of the finest flavored English, such as the Warrington red, and saving the seed, of both kinds in hopes of raising new ones of increased excellence. The bees will take the labor of hybridising on themselves, as there are few other flowers in bloom at the time the gooseberry is in flower.

James Dougall.

Rosebank, 10 August, 1850.

IS THE EARTH FULL OF SEEDS?

This question introduced a paragraph in yesterday's Journal. In 1845 while waiting at the foot of the White Face Peak of the Adirondac, for the clouds to remove from the summit, a fire broke out in the woods on the eastern slope of the mountain, and soon this gigantic mountain was wrapped in a sheet of flame. The trees and every combustible substance on the surface was consumed, and the thin covering of loose earth (about a foot in thickness) on the rocks was calcined by the heat. About three years afterward, I again visited the mountain, and found the burnt district a vast field of blueberry bushes. During the fruit season, more than two thousand bushels of blueberries were gathered in this field for the Montreal market.

About forty years ago, the extensive barrens, lying between the Cumberland and Green River, in Kentucky, were covered with high grass, strawberries, and wild flowers. Among the latter, the morning glory. Every autumn, when the grass had become dry, it was fired either by hunters or from the camp fires of flitters. I have seen a fire many miles in length traversing these barrens with the speed of a race horse. No trees could grow here, but the grass respouted and appeared to gather new life from the fire. Since the barrens have become settled, the autumn fires have been prevented, and it is now a thickly wooded district. Chestnut, oak, and hickory have sprung up, and when I saw the first early growth, it looked like one vast nursery, bounded on all side by the horizon.

In my examination of the extensive plains lying between Lake Ontario and the river Ottawa, I found that districts of pine timber, which had been swept by the flames, weresupplied with a new growth of hardwood in place of the pine. Near the borders of Lake Champlain, on the western side, farmers cultivate blueberry bushes; they pile brush on the ground laid out for the berry field, set fire to the brush and burn it, and the next year the blueberry bushes spring up in abundance.

These facts bear witness to the harmonies of nature, and give evidence of the fertility of our beautiful earth.

The most ancient account of our earth, makes mention of the "*grass, the herb yielding seed, and the fruit-tree yielding fruit after his kind, whose seed is in itself upon the earth.*"

The "fireweed" is well known among farmers. This weed is planted by the fire. The place where a coal pit has been burnt, may be easily distinguished by the luxuriance of its products.

When Kotzebue was in the far Northern seas, he landed upon an Island covered with grass. His men in making an excavation found that this Island was a mass of ice, and that the loose earth in which the grass was growing, was not six inches in thickness.

In one of the Northern Lakes, I found the "Lungwort," as large as a teasaucer, growing on the bare granite rock, with a stem not larger than a common knitting needle, and only a quarter of an inch in length.

I carefully examined a vine which I was cultivating, and when its tendrels were moving in search of an object to cling to, I placed a little stick near it, but at the opposite point from that toward which the vegetable hand was reaching. In an hour after, when I reexamined it, the tendril had turned about, and was winding around the stick.

There is life in everything. The earth is full of life, and it is full of seeds, and they were planted by the hand of Him who made the world.—E. M., *in Journal of Commerce.*

APPLES.

Picking Winter Apples. The usual time of picking winter apples is the last of September, or the fore part of October; many leave them until the middle of October, which improves the flavor, though they do not keep so well. In order to pick them, some take a small basket in the tree, fill it, and then let it down by means of a rope, which will upset the basket. As a better mode, some recommend placing bags or piles of hay under the tree to throw the apples on; the hay to be so formed that the apples will roll off as soon as it strikes; the machine called a "fruit gatherer," is an article by which a man is enabled to pick the fruit while standing on the ground, and also much faster than in any other way. The apple should be pulled so as to retain the small stem only, and to do this it is necessary that the apple should be pulled in a right line with the stem. If the apple is twisted a little it will come off easy without the leaf.

Preserving Winter Apples. After picking in the fall, the apples should be kept in some cool shed until the weather becomes so cold as to render their removal to the cellar necessary, in order to keep them from freezing; for it is heat and moisture that hastens their decay. Apples that are to be kept long must be kept cool and dry. A cellar which has ice in one part of it is desirable. We have always found them to keep best by having hanging shelves for their reception.

Another Mode—To Keep Apples for Spring Use.—The following judging from experience we believe to be a very efficient mode of keeping apples;—They are to be kept in chaff.—First put a layer of chaff sprinkled with quicklime over the bottom; then layer of apples, followed by another stratum of chaff and lime, and so on until the cask is filled. In regard to this method the editor of the *Genesee Farmer* says:

"It is well known to all those who have been in the practice of burying apples in heaps, that the fruit comes out in the spring much fresher, and finer flavored than it does when kept in open bins in the cellar—a part of the flavor in the latter case, doubtless evaporating. This method has all the advantage of burying, with another which we will explain. When one apple among many in a bin rots, the adjoining ones are contaminated; and not unfrequently a mass of rottenness occurs, surrounded by much sound fruit. Now the use of the lime is to absorb the gases generated by the putrefaction, and prevent such *leaven* from spreading."

It does not require much lime; less than a quart for a barrel is sufficient.

Apples for Stock. As there are always at this time of the year apples lying under the trees rotting, perhaps a few remarks in regard to feeding them to stock, will not come amiss to some of our readers.

They may be turned to profit by feeding them to hogs, cows, horses and sheep, as they are admirably adapted to promote the thrift of stock generally. Some have imbibed a very strong prejudice against feeding them to cows; but the idea that cows fed on them will shrink their milk, is altogether absurd; that is, when fed in a judicious manner, with ripe well matured apples. We have no doubt that if fed too freely, when the food taken is of a succulent and fermentable nature, it will be likely to produce fever; but overfeeding with potatoes, &c., will be just as likely to prove injurious. As to the quantity which should be given a common sized cow, we would not recommend more than a peck to half a bushel, according to the appetite of the animal. This amount will answer the purpose of a liberal feeding with hay and grain.

To Preserve Pumpkins.—Preservation of pumpkins, observes a farmer, through the greater part of the winter, if sound and well ripened, is easily attained, by stowing them in a mow of dry hay or straw, or placing on a barn floor and covering with any light forage. A dry cellar will frequently keep them sound; but these are usually too moist for this purpose. They ought occasionally to be looked after, and any showing evidence of incipient decay, should be immediately used. All the partially ripe, small, and imperfect should be fed soon after taking from the field.

(We have kept them to the middle of July by putting them in a dry cellar upon a scaffold, where the temperature was at no time below the freezing point.)

New and Economical Mode of Forcing Vegetables.—It has been suggested by a foreign paper, that the waste steam of manufactories may be advantageously applied to the roots of plants; and without any expense for artificial heat, large quantities of tropical fruits and vegetables may be raised at all times, besides such of our own, as we can otherwise have in perfection, only during the summer months. A series of common draining tile, laid within suitable distances underneath properly-prepared beds, containing the plants, which should admit or shut off the exhausted steam by cocks, would be all that is necessary for the underground arrangements. Moisture would be thus communicated as well as heat, and a slight covering of wood, or brick and glass, to protect the plants from frosts or cold air, would be all that is essential to securing the most prolific growth.—*American Agriculturist.*

Fall Management of Bees.—The months of October and November are the season when the state of the apiary will require particular attention. The hives should be examined, and those not containing honey enough for its occupants to

sustain them during the Winter, must be fed. An ordinary swarm or family of bees will consume from 15 to 20 pounds of honey, from October to May. If the Winter be very mild, more than this quantity will be required; but not in an ordinary season. The apiarian should be able from practice, to know at once on raising his hives, whether the above quantity exists in them or not. Hives that have been occupied several years will be as heavy without any honey as others that have been used but one season, with from five to ten pounds; therefore, an allowance must be made for the weight of old combs and bee-bread.—*Miner.*

General Science and Miscellany.

Premium for the Best Bread.—In the schedule of the Norfolk County Agricultural Society, for its next annual exhibition, we are happy to oberve premiums offered for the best bread, accompanied with a receipt for its manufacture. We rejoice in this, because it may serve to direct the attention of the daughters and mothers of Norfolk towards one of the most important branches of female industry, and because it may also render them the occasion of provoking good works. The day may yet come when at these annual county fairs, each town will have its table provided with all kinds of food and dainties, prepared by its females, not only for exhibition and premiums, but for the purchase and refreshment of visitors.—*Puritan Recorder.*

Coppering Iron.—A method has been discovered, and is coming into use, of covering iron with copper, something as we see it covered with tin. It is obvious that the uses to which such a preparation of iron can be put are very many, and it will, therefore, become a very convenient article in the arts. It can be used for roofing, for covering the bottoms of ships, and for a great many other purposes where iron alone would be likely to rust out too soon.

Kicking Horses. — A writer in the *American Farmer*, gives the following as his mode of breaking horses of the vile and dangerous habit of kicking. He says,

"I attach one end of a strong line to the hind pastern of the horse, and take it forward through the loop, fastened to the trace, at the side of the horse, and attach the other end of the line to the bridle; a line attached thus at each side of the horse, if left sufficiently long to just enable him to make a step, will at every kick he may make, operate so severely upon his mouth as to cause him very soon to give it up as a bad job."

Cure for Glanders.—In answer to one of your subscribers, inquiring what will cure "Nasal Gleet," or discharge from the nose of horses, I would say, that I have cured many with the following simple compound, and two cases that were called glanders confirmed, viz: Take one teaspoonful of common rosin, one tablespoonful of copperas, two tablespoonfuls of salt, and four spoonfuls of dry ashes; pulverize the rosin and copperas, and mix the whole and give it in bran, or shorts, or oats dry, and in four weeks time, by giving the same quantity twice a week, I cured the two cases of glanders. I have used the same in cases of cold or catarrh, and three or four doses have performed a cure. I have also used it for horse distemper with success.

THE NEW WATER GAS.

After so much has been said about gas, cheap gas, water gas, and Paine's light, we are gratified to find there has been something at the bottom of the subject, and we are both surprised and gratified to find that water gas, after being subjected to various tests, has been found to realize the most sanguine expectations concerning it. We are informed that the proprietors of the Astor House, in this city, have had that whole establishment lighted with water gas, over two months; after which they have contracted with the proprietors of the patent to have the Astor House lighted thereby, by the year. Their expense for lighting the same is less than half the cost of coal gas, while the light is double, in other words, the same is supplied by the Union Gas Light Company, (who have purchased the patent for the United States) light for light, at about onefourth the price of coal gas. The light is powerful, yet soft and pleasant to the eye; and being made from water, which is afterwards carbonized, is perfectly pure, requiring no purifying, and giving a gas, the consumption of which, in a room, produces none of the sulphurets and many other impurities which are always developed by the use of coal gas, &c. We learn, also, that the *Clipper* newspaper establishment at Baltimore, has been making this gas for their own use for more than six months, at a cost, to themselves, of less than one-fifth the price of coal gas; as has also been the case at several other establishments. But in all cases the same has been done quietly, the patentee being desirous first thoroughly to show its application and economy previous to giving publicity thereto. The spirited proprietors of the Astor House have conferred great obligation on New York and the Union in permitting the trial, and developing to us the merits and benefits of this invention, and are now realizing the profits of its economy, and we understand that many works are now being negotiated for.

Now that this gas can be made, of superior quality, at one-fourth the price of coal gas, we breathe a little freer, and thank the gods that a brighter prospect is before us, and hope now that our streets, lanes, and alleys will be passable at night to those needing them. We hope our city fathers will no longer sleep in present darkness, (unless they love darkness better than light) but examine into this subject, with a view to facilitate the supply to our brother citizens. We hope interested gas monopolies may not be assisted to

intrude obstacles to its introduction, but that light, good light, cheap light, at one quarter of its present price, may be immediately enjoyed by all, and we advise our readers, when they pass that noble pile, the "Astor House," at night, just to take a peep at the new water gas, and make their own comparison. The splendid drawingroom for ladies, when lighted, looks almost supernatural and fairy like, and when we enter the reading room, we find the light soft and pleasant to the eye—very different to the killing coal gas and spirit lamps.—*New York Herald.*

WATER BEDS FOR INVALIDS.

The most of us are contented with a good feather bed to rest upon when we are weary, but there are instances when even the softest becomes hard to the invalid. Water hasbeen substituted for feathers, with good advantage. Its fluidity is such that it will accommodate itself to the inequalities of theform, and thus produces equal pressure upon every part of the body. This was an invention of Dr. Arnot.

Prof. Brown thus speaks of it in the last number of the Practical Christian:—"It consists of a trough of a convenient length and breatdh, and a foot deep, half filled with water, over which a sheet of caoutchouc cloth large enough to reach the bottom is thrown. The edges of the cloth are varnished and securely fastened to the top of the trough. Over this a thin soft mattress is laid with pillows and bed clothes in theusual way.

The great advantage of this bed for a surgical patient consists in lessening and equalixing the pressure of the body whilst lying. Those parts of the body which touch an ordinary bed, from compression, receive a smaller supply of blood than the rest; and as in sicknessthe patient is often too weak to turn frequently without assistance, the consequence is that the pressed part mortifies and sloughs off. This disastrious result, (the cause of many deaths,) may be entirely prevented by using the hydrostatic bed. With it wounds may be dressed, and other necessary operations performed, by depressing the mattress at any particular part, which the water underneath readily allows, so that in extreme cases the patient may not require to be moved at all.

It is indeed surprising that this admirable invention has not come into general use.—Dr. Arnot, with his accustomed liberality, declined taking out a patent for it. It can, therefore, be made at a cheaper rate than most any other bed, whilst in every respect it is by far the best bed for patients who may be confined to the horizontal posture for a very considerable time.

The inhabitants of a village might subscribe for a hydrostatic bed, and use it in common, as it might be needed. Great comfort and advantage to the sick would accrue from such an arrangement. Let some of our more spirited villages set the example.

ABSORBENT POWER OF THE EARTH USED AS PREVENTIVE OF DISEASE.

The earth is a powerful absorbent, and will prevent the spread of disease. If we have a dead animal, or anything which becomes troublesome to the olfactories by reason of unpleasant ordors produced by decomposition, we bury it in the earth, and immediately everything of the kind is neutralized. It is remarkable how small and thin a coating of earth will oftentimes effect this. In some of the southern cities, where the cholera has been prevalent, an observing gentleman has taken advantage of this fact and applied it practically to the neutralization of the *malaria* which is supposed to produce it. This he does by noting the place where the pestilence first broke out, and covering all the filthy and neglected puddles and sewers, or other fountains of foul air, with *clear, fresh sand,* and on this a sprinkling of fresh lime or plaster of Paris. By following up this course he has been uncommonly successful in checking the prevalence of this terrible disease.

THE TELESCOPE AND MICROSCOPE.

It was the telescope that, by piercing the obscurity which lies between us and distant worlds put infidelity in possession of the argument against which we are now contending. But about the time of its invention another instrument was formed which laid open a scene no less wonderful, and rewarded the inquisitive spirit of man with a discovery which serves to neutralize the whole of this argument. This was the microscope. The one led me to see a system in every star; the other leads me to see a world in every atom. The one taught me that this mighty globe, with the whole burden of its people and of its countries, is but a grain of sand on the high field of immensity; the other teaches me that every grain of sand may harbor within it the tribes and the families of a busy population. The one told me of the insignificance of the world I tread upon; the other redeems it from all its insignificance, for it tells me that in the leaves of every forest, and in the flowers of every garden, and in the waters of every rivulet, there are worlds teeming with life, and numberless as are the glories of the firmament. The one has suggested to me, that beyond and above all that is visible to man, there may lie fields of creation which sweep immeasurably along, and carry the impress of the Almighty's hand to the remotest scenes of the Universe; the other suggests to me, that within and beneath all the minuteness which the aided eye of man has been able to explore, there may lay a region of invisibles; and that, could we draw aside the mysterious curtain which shrouds it from our senses we might there see a theatre of as many wonders as astronomy has unfolded, a universe within the compass of a point so small as to elude all the powers of the microscope, but where the wonder working God finds room for the exercise of all his attri-

butes, where he can raise another mechanism of worlds, and fill and animate them all with the evidences of his glory.—*Dr. Chalmers.*

DISCOVERIES IN THE ANCIENT COPPER DIGGINGS.

We were shown last week, by Charles Whittelsey, Esq., of the Ontonagon Mine, a copper arrow-head and a piece of human skull and other bones, which have lately been found in the Ancient Indian Diggings on the Ontonazon River. The native copper arrow-head is now about two inches in length and seems to have had originally a socket, though but part of it remains. Several chisels, or instruments resembling chisels, having sockets like the common carpenters chisel, and small gads or wedges have also been found at the Minnesota Mine. But the greatest curiosity we have seen in the way of these articles, is the stick of oak timber lately taken out of one of the ancient "pits" or shafts at the Minnesota Mine, twenty-seven feet below the surface. It is a small tree, about ten feet in length, and 8 or 10 inches in diameter, having short limbs 2 feet apart and at nearly right angles with one another, and on this account and from its standing nearly upright, it is supposed to have been used as a *ladder* by the ancient miners. In this shaft and around and over this stick were rocks and earth; and large trees were growing over it, and many centuries must have elapsed since that ancient ladder was placed there.

We learn from Capt. J. W. Hunter, who brought down last week a piece of this stick about four feet in length, and to whom we are indebted for a small piece of the same, that when taken out of the mine it could easily be pulled in pieces by the hands, but by carefully drying it in the sun it became strong and hard and very much "sea son cracked" by the exposure to the air and sun. How long would oak timber probably remain in this state of preservation under such circumstances? and would the presence of copper around it have any effect in the preservation of it? These are questions to which we should be glad to have more satisfactory answers than we are able to give them.—*Lake Superior Journal.*

COPPERDOM.—The Lake Superior Journal, says the following estimate will not vary far from the amount of copper in the rough, which will be sent down from Lake Superior during the present month:—

Boston & Pittsburg Co., about lbs. .	1,800,000
North West	400,000
North American	120,000
Minnesota	200,000
Siskawit	60,000
All others, not cover . . .	100,000
Being a total of . . .	2,680,000

There will be employed this winter in operations connected with mining about 1,000 operatives.—*Detroit Advertiser.*

MONTREAL INDUSTRIAL EXHIBITION.

From the Montreal Transcript.

The distribution of the prizes took place at the Bonsecours Market, last night,—too late, however to enable us to obtain a list for publication. Under these circumstances, we can only refer to some few prominent articles, which have taken prizes, and which have attracted much attention from their great beauty and excellence. First in this class is to be placed some imitation marble work, executed by Mr. McArthur, of Ramsay & McArthurs, of this city, and consisting of chimney pieces, centre tables, &c., &c. So admirably is this work executed, that in the case of common pine tables, done to represent mahogany and oak, it is only on the closest examination that the deception is discovered. It is the same with several chimney pieces and sections of columns. Thousands have refused to believe that they are not what they appear to be. But the gem of this *groupe* is an imitation mosaic table, painted on the common lime-stone of the country, and representing some hundred different species of marbles, many of them copied from the original marbles, and all executed with a skill and fidelity which it would be difficult to rival. This piece of workmanship has attracted more attention than anything else in the exhibition and it deserved to do so. On the same dias, are some iron centre tables painted by Kreighoff, and which are also worthy of notice; and near them is a very pretty wardrobe, in white and gold, painted by Mr. McArthur, and constructed in first rate style, by Mr. Tweedie, Upholsterer, of Notre Dame Street.

The furniture which has taken the largest prize, is a set of black walnut chairs, sofa, &c., made by Meaken & Read, of Great St. James Street, and which is the same, we understand, intended to be presented to the Queen. The style is quaint, and the workmanship seems to be very good. Mr. Meaken's son has also taken the apprenticeship's prize offered by the Mechanics' Institute for a piece of very nice carving in wood.

Some magnificent furniture from the warehouse of Messrs. Hilton & Baird has also taken first prizes. It would be difficult to conceive anything more gorgeous and beautiful than this furniture, which attracted great attention.

Of the prizes for carriages, we see that Quebec and Montreal have nearly divided the list. A summer carriage by Saurin, of Quebec, has been much admired, and the same may be said of a family carriage by O'Meara, of the Haymarket. Wright & McLean have taken a prize for a very dashy little single sleigh, which would astonish the world in Hyde Park; and the same may be said of a double sleigh by O'Meara, which has taken the first prize.

There have been some capital specimens of manufactured and domestic articles exhibited,

particularly blankets, which would vie with any imported. We see that Mr. Dickson, of Toronto, and the Messrs. Barber, of Esquesing, have taken prizes in this list.

In the hardware, S. Shaw, of Toronto, has taken the first prize for axes, and a lot from Dundas the second prize.

Of the wheat, the two largest premiums have gone to Upper Canada—the Canada Company's sample taking the first prize; John Allan, of Longue Point, has the 3rd prize. The other articles in this department are too numerous to attempt going over them. We see, however, that Messrs. Willock, and Fitts have taken prizes for cabin and sodabiscuit. The various samples of grain, lard, honey, &c., in this class have been much spoken of and are highly creditable to the industry of the country.

An article which has attracted a good deal of attention at the exhibition is a sample of porpoise leather, made below Quebec. It is the skin of a fish, after the oil had been extracted and promises to be a most valuable invention. It is as soft in its texture as French kid, and so tough that it is almost impossible to break a piece of it. We are told by a person who used it, that it does not crack, and that its durability almost exceeds belief. The sample brought in here was immediately bought up, and we make little doubt the article will have a rapid demand.

Apropos of leather, Mr. Dangerfield has exhibited some very beautiful specimens of ladies and gentlemen's shoes and boots, made in a way that few besides Dangerfield can come up to.

A stand which excited a great deal of attention, was the one containing specimens of soap and candles from the factory of Mr. Mathewson. It is evident that Canada has nothing to learn in that way from other countries, and that (whatever we may want in other respects) we are able to "lighten our own ways."

In speaking of hardware, too, we ought to have mentioned the numerous samples of stoves sent in by Mr. Ladd, who took the first prize for a cooking stover Mr. L. also exhibited a portable grist mill, which attracted a great deal of attention, and some very capital specimens of castings.

A beautiful old country plough, made by Mr. Fleck, took the first prize. There were also some good ploughs from the Upper Province, one of which took the second prize.

Amongst other articles which attractad a good deal of attention, we ought not to omit some very butiful specimens of needle work. Two pieces in worsted by Mrs. Bennett, of Beauharnois, to which the first prize was awarded, were truly wonderful for the effect produced, and the same may be said of a bird in worsted, worked by one of the sœurs de la congregation. There was also a worked chair at the upper end of the room, and which we understand came from Gabriel Street, Julien's establishment, which was very beautiful.

In the way of the fine arts, two specimens are particularly deserving of notice—viz., a child's head, and the head of the Catholic Bishop of Montreal, both done in marble by Boulet, of this city. They are exceedingly beautiful, and indicate a perfection in this branch we were not prepared for.

We understand that the Judges have recommended a number of articles to be sent home and it is also generally suggested that a similar Exhibition shall be held every year in Montreal —a proposal which cannot fail—after the great success of the first attempt—to meet with general approval.

CANADIAN ENTERPRISE.

The products of the soil, we are happy to learn, are now nearly secured, and will be found to exceed those of many previous years. And, while on this subject, we should consider ourselves almost guilty of a direlict on of our duty, if we failed to notice the mammoth field of wheat, two miles distant from the Springs, (Ottawa District) which our friend, Mr. Sheriff Treadwell, has just secured. This field, which is more than one mile in length, and embracing perhaps not less than two hundred acres of land, was sown last spring with Black Sea wheat, and received many a well merited encomium from the passing traveller on his way to the Spring, to whom it presented one of the richest and most fascinating scenes which he is apt to find in any rural district. While on our peregrinations yesterday, we observed that Mr. Treadwell was obliged, during the past summer, to erect three new barns, of extraordinary size, in addition to those he had already built, inorder to find store-room for his extensive harvest, and we are told the field above alluded to, notwithstanding the wetness of the season, in the absence of proper draining, will be above the common average. Nor are Mr. Treadwell's other spring crops on a scale less extensive, while he is about preparing, with the subsoil pl ough, 200 acres more for spring wheat the ensuing season. This is just as it should be, and we hope many other farmers of o ur fertile county will copy after him, and remember "*Labor omnia vincet.*"—*Life at the Springs.*

A Treatise on campanology published in Norwich (England) states according to an accurate calculation, that the number of combinations of eefinite sounds that can be produced on twenty-four bells, is so great that at the rate of two in a second it would require 117,000,000,000,000 years to strike them.

Fall Plowing.—All stiff, clayey lands, intended for spring crops, may be plowed this month, when the earth is neither too wet nor too dry. If plowed at the right time, and subjected to the winter frosts, the texture of the soil will be greatly improved.

A good farmer is generally a true friend, an affectionate husband, an excellent parent, and an honest man; and it is an established axiom that a *well-tilled field* denotes not only care and industry, but the supervision of an enlightened mind.

SAFEGUARDS FOR STEAMBOATS.

An exchange says that the many disasters which occur in steamboat navigation have awakened much attention to the subject or providing proper safeguards for life on such occurrences. A writer in the *National Intelligencer* suggests that each vessel be provided with pieces of dry scantling, six inches square and six feet long, having a four-inch hole bored through the middle, and carefully stopped at each end. This piece of timber will weigh about forty pounds, and displace two cubic feet, or one hundred and twenty-four pounds of water; making a difference of eighty pounds, which will be the load required to sink it, If the human head averages ten pounds in weight, this float will support eight adults with their heads out of water. For convenience of holding on, there should be a small cord fastened at the ends, along two sides of the float, and on riders, promiscuously thrown over board, several of them where the stream would carry them away. It should be attached by cords, and a line to connect with a boat, or an anchor, or to the steamer; twenty of these floats would fill but forty cubic feet, and admit of compact stowage. They might also be used for seats, &c., for the deck passengers, with no small improvement of their comfort. These might save, if each was fully loaded, one hundred and sixty lives. But, making allowances for every thing, twenty floats might be estimated to save one hundred persons from drowning.—*Detroit Advertiser.*

Bridge between England and France.—The British Academy of Sciences has at present under consideration a plan of a most extraordinary character, being neither more nor less than a suspension bridge between France and England. M. Ferdinand Lemaire proposes to establish an ærostatic bridge between Calais and Dover. For this purpose he would construct strong abuttments, to which the platform would be attached. At a distance of 100 yards across the channel, he would sink four barges heavily laden, to which would be fixed a double iron chain of peculiar construction. A formidable apparratus of balloons of an elliptical form, and firmly secured, would support in the air the extremities of these chains, which would be strongly fastened to the abuttments on the shore by other chains. Each section of 100 yards would cost about 300,000 francs, which would make 84 millions for the whole distance across. These chains, supported in the air at stated distances, would become the point of support of this fairy bridge, on which the inventor proposes to establish an atmospheric railway. The project has been developed at great length by the inventor.

Power of a bushel of coals—It is well known to engineers that there is a virtue in a bushel of coals, properly consumed, to raise seventy millions of pounds weight a foot high. This is actually the average effect of an engine at this moment working at Huel Town, in Cornwall. Let us pause a moment, and consider what this is quivalent to in matters of practice.

The ascent of Mount Blanc, from the valley of Chamouni, is considered, and with justice, as the most toilsome feat that a strong man can execute in two days. The combustion of two pounds of coal would place him on the summit.

The Menai bridge, one of the most stupendous works of art that has been raised by man in modern ages, consists of a mass of iron, not less than four millions of pounds in weight, suspended at a medium height of 170 feet above the sea. The combustion of seven bushels of coal would suffice to raise it to the place where it hangs. The pyramid of Egypt is composed of granite. It is seven hundred feet in the side of the base, and 500 in perpendicular height, and stands on 11 acres of ground. Its weight is therefore 12,760 millions of pounds, at a medium height of 126 feet; consequently it would be raised by the effort of about 360 chaldrons of coal—a quantity consumed in some foundries in a week. The annual consumption of coal in London is estimated at 1,500,000 chaldrons.

The effort of this quantity would suffice to raise a cubical block of marble, 2200 feet in the side through a space equal to its own height, or to pile one such mountain upon another. The Monte Nuovo, near Puzzoli, which was erupted in a single night by a volcanic fire, might have been raised by such an effort, from a depth of 50,000 feet or about 8 miles.—[Working Men's Friend.]

SUBMARINE TELEGRAPH BETWEEN ENGLAND AND IRELAND.

Negotiations are being entered into with the Lords of the Admiralty and government authorities for the establishment, across St. George's Channel, of a subaqueous telegraph, upon a similar though much more extensive scale to that now being undertaken between England and France, the promoters of which have, it is understood, after considerable interviews and treaty, come to terms this week with the French government for the exclusive possession of the proposed electric line from the French coast to Calais.—Preliminary surveys have been made for this proposed oceanic communication across the Irish Channel, and the coasts on either side, combined with the submarine site ascertained by soundings for the sinking of the wires, are found, owing to the foundation being comparatively free from rocks and shoals as compared with the Straits of Dover, and with treble the extent of channel, to be favorable. Notices of the intention of the promoters to apply to Parliament next session for an authorization to lay down the line will be given. The precise points at which telegraphic stations on the English and Irish coasts can be established will depend on the results of the government commission now pursuing its inquiry into the best place for the establishment, on the west of Ireland, of a great transatlantic packet station. At present, two telegraphic routes are proposed; the one of sixty-four miles across the Channel, from Holyhead to Kingstown and Dublin, and thence by the Great Southern and Western Railway on to Cork and Galway—the other from St. David's Head, on the Welsh coast, and on to Wexford, Waterford, and the extreme western points of Ireland to Berehaven and Crookhaven, the latter being the last points touched at by vessels outward-bound for the Atlantic. From this point, on the extreme western coast of Ireland to Halifax, the nearest telegraphic station on the American side, the distance is 2,155 miles, and as this might be accomplished by the steamers in five or six days, England, by means of the network of telegraphic communication in existence on the Atlantic seaboard on the one side, and the lake frontiers on the other, may be put in possession of all political and commercial intelligence from the American and European continents in six days, instead of, as now, in twelve or fourteen. The project, though it is asserted it might be done with safety, does not contemplate anything like the immense enterprise of a wire under the Atlantic.

The Interior of Africa.—Becroft, a daring and intelligent English voyager, has years ago dissipated the delusion, that the interior of Africa is a desert

waste. He has shown that it is accessible to navigation and trade; and the climate is as healthy as that of the tropics generally; that there are regions of beautiful and fertile country, affording opportunities for legitimate commerce of indefinite extension. This advanturous traveller explored the river Niger within forty miles of Timbucto. He has thrown light on thousands of miles of richly fertile and wooden country, watered by the great stream; and upon the ivory, vegetable tallow, peppers, indigo, cotton, wool, palm oil, dye woods, timber woods, skins and a great variety of produce, which invite the trade. To carry on this trade in the vessels which navigate the river, it is necessary to have black crews. The *London Spectator* remarks:—"Of course the free blacks, educated in the West India trade, will become useful workmen in penetrating the native land of their race. We must depend, at least for generations to come, on the black race to supply the bulk of the crews." For our own part, we do not see why our own country should not compete with Britain for the rich trade of Africa. Nor do we know any more efficient method of competition than the proposed line of steamers.—*American Paper.*

Corns on the Toes.—These annoying excrescenses are produced by long continued pressure and friction on the parts upon which they occur. The skin is rubbed and irritated by the boot or shoe on one side, and is in immediate contact with the hard bone on the other side, and has no means of escape; and the consequence is that the epidermis acquires an increased thickness and hardness. Sometimes corns are formed between the toes. Here a particular point of the skin presses against the head of an opposite bone, gets inflamed and becomes the seat of a corn, which is usually small and soft and occasionally secretes a minute quantity of fluid. Now and then an ulcer is produced and the bone itself is diseased, and the case becomes a serious one. We will not however, detain the reader with further description of a trouble with which he may be quite familiar, but will rather suggest the best means for its amelioration or removal. A very loose shoe or a very snug one is bad. Wear a boot or shoe moderately tight.—Daily ablution with soft water and a liberal quantity of soap should be practiced, and the parts affected should be kept covered with a piece of nice cotton wool. The above is the safest, neatest and best way of treating the difficulty in question in all ordinary cases. This I know by experience.

Why Women are Unhealthy.—Many of the physical evils—the want of vigor, the inaction of the system, the languor and hysterical affections—which are so prevalent among the delicate young women of the present day, may be traced to a want of well trained mental power and well-exercised self-control, and to an absence of fixed habits of employment. Real cultivation of the intellect—earnest exercise of the moral powers—the enlargement of the mind by the acquirement of knowledge, and the strengthening of its capabilities for effort, for firmness, for endurance of inevitable evils, and for energy in combating such as they may overcome, are the ends which education has to attain; else weakness but becomes infirmity. The power of the mind over the body is immense. Let that power be called forth; let it be trained and exercised, and vigor both of mind and of body will be the result. There is a homely, unpolished saying, that it is better to wear out than to rust out; rust consumes faster than use. Better, a milion times better, to work hard even to the shortning of existence, than to sleep and eat away this precious gift of life, giving no other cognizance of its possession. By work or industry, of whatever kind it may be, we give a practical knowledge of the value of life, of its high intentions, of its manifold duties. —Earnest, active industry is a living hymn of praise, a never failing source of happiness; it is obedience, for it is God's great law for moral existence.—*The Physical Training of Girl's at School, by Madam de Wah.*

Medicine for Horses.—Many seem to imagine that the constitution, physiology, and diseases of the horses are different from those of man and other animals. This is a mistake. The common diseases of the horse are similar to those of man; and the same medicines, in those diseases, are as useful to one as the other. Some writer states that the doses should be from eight to twelve times larger when the horse is the patient.—The anatomical structure of the stomach issuch as to forbid his vomiting, so that an emetic should never be given.

Improvement in Sugar Refining.—The London Morning Herald states that an important improvement has taken place in the manufacture of sugar. It says, "By means of the now well-known patent for drying by centrifugal force, and the aid of a few simple adjuncts, sugar, which took from three to five weeks to refine, is now done in as many minutes. Incredible as this may seem, the whole process, with the result here stated, has been witnessed by our informant at the sugar-houses of Messrs. Finzel & Son, at Bristol. Moreover, sugars altogether unsaleable in our markets were converted in a few minutes into an article worth about $8,48."—*Am.*

Home-Made Candles.—If you manufacture your own candles, immerse the wicks in lime water in which a little, (saltpetre,) has been dissolved, and dry them before dipping. The light from such is much clearer, and the tallow will not "run."—*Ibid.*

To Purify Molasses.—Boil and skim your molasses before using it.—When applied for culinary purposes, this is a prodigious improvement. Boiling tends to divest it of its unpleasant, strong flavor, and renders it almost equal to honey. When large quantities are made use of, it is convenient to prepare several gallons at a time.—*Ib.*

Mr. Gough.—This extraordinary man was born in Kent England, in 1817, his mother was a schoolmistress of Sandgate, and his father a soldier in the 52nd. He emigrated to New York in 1829. He was an errand boy in a Methodist book concern in New York, then a play actor in Boston till 1837; then a drunkard, then a temperance lecturer. He is not one of those vulgar itinerants whom we often see strolling about the province, relating, with a strong nasal twang and in the most disgusting manner, their experience as reformed drunkards: he is not one of those pig headed fellows who, because they have been raised from their native gutter by the Temperance Society, think they have a right to run about the country, holding forth and disgusting every respectable person: no, he is not one of those, but a real child of genius—an eagle stretched for a moment by a self-inflicted wound upon the plain, but again soaring heavenward in his stength and beauty. —*Cobourg Star.*

The Eloquence of Experience.—At a young men's debating society in Indianna, United States, the question for discussion, a few week's since, was—"Which is the greatest evil—a scolding wife or a smokey chimney? After the appointed disputants had concluded the debate, a spectator rose, andbegged the privilege of "making a few remarks on the occasion." Permission being granted, he spoke as follows:—"Mr. President, I've been almost mad a-listening to these 'ere youngsters. They don't know nothing at all about the subject. Wait till they have had one for twenty years, and been hammered, and jammed, and slammed all the while:—and wait till they've been scolded because the baby cried, because the fire wouldn't burn, because the oven was too hot, because the cow kicked over the milk, because it rained, because the sun shined, because the hens didn't lay, because the butter wouldn't come, because the old cat had kittens, because they come too soon for dinner, because they were one minute too late, because they sung, because they tore their trousers, because they invited a neighbour woman to call again, because they got sick, or because they did anything else, no matter whether they could not help it or not, before they talk about the evils of a scolding wife. Why, Mr. President, I'd rather hear the clatter of hammers and stones, and twenty tin pans, and nine brass kettles, than the din, din, din, of the tongue of a scolding wife. Yes sir-ee, I would. To my mind, Mr. President, a smoky chimney is no more to be compared with a scolding wife, than a little negro is to a dark night."

Vegetable Instinct.—If a pan of water be placed within six inches on either side of the stem of a young pumpkin or vegetable marrow, it will, in the course of the night, approach it, and will be found in the morning with one of its leaves floating on the water. This experiment may be continued nightly until the plant begins to fruit. If a prop be placed within six inches of a young convolvulus, or scarlet runner, it will find it, although the prop be shifted daily. If, after it had twined some distance up the prop, it be unwound and twined in the opposite direction, it will return to its original position or die in the attempt; yet, notwithstanding, if two of these plants grow near each other and have no stake around which they can entwine, one of them will after the direction of its spiral, and they will twine around each other. Duhamal placed some kidney beans in a sylinder of moist earth. After a short time they began to germinate, of course sending the plume upwards to the light, and the root down in to soil. After a few days, the cylinder was turned one-fourth round, and again and again this was repeated until an entire revolution of the cylinder had been completed. The beans were then taken out of the earth, and it was found that both the plume and radicle had bent to accomodate themselves to every revolution, and the one in its efforts to ascend perpendicularly, and the other to decend, had formed a perfect spiral. But although the natural tendency of the root is downwards, if the soil beneath be dry, and any damp substance be above the roots will ascend to reach it.

A New way of gaining a Living.—On the bouvelards of Paris there is to be seen a woman, who makes money by experimenting on the sensibilities of the fair. The veneration which French ladies hold for the swallow, that precious messenger of good omens, is well known. The woman spoken of moves their hearts and loosens the strings of their purses by means of these sweet little birds. About the promenading hour of the afternoon, on the Italian boulevard, she goes with a cage in which are contained five or six swallows; these she exhibits to passers by, particularly to the ladies, when compassion is immediately excited on seeing the efforts of the fluttering little prisoners to be free. "Would you like to let one go," says the woman, "it will only cost you two pennies." As may be supposed many avail themselves of the pleasure, pay their two pennies to the woman, receive in their hands the bird, and then enjoy the satisfaction of seeing it fly away at liberty. In this way, one by one, the cage is emptied, and the woman goes home, where she finds her swallows already arrived before her. The birds having been trained, take advantage of their liberty only to return directly to the habitation of their mistress. The next day she commences the same comedy anew.

The Hudson's Bay Company are advertising for emigrants to Vancouver's Island. One plan adopted by the Company is that of sending out a small body of experienced agriculturists, who are to be engaged at about £55 a year with maintenance, under a contract for five years, the object being, that, with a certain number of laborers under them they shall create farms which may be sold ultimately to persons possessed of moderate capital, and who are likely to become the most useful class of inhabitants. It is regarded as probable that many families would be tempted to seek the country with a view to settlement under such circumstances, who would hesitate to enter upon the wild life of a wholly unprepared region.—*Times.*

A new machine, capable of making 26,000 perfect bricks per hour, at the cost of about one guinea, has recently been exhibited by the Messrs. Harts, engineers of London, and was highly approved of.

Editor's Notices, &c.

SCOBIE'S CANADIAN ALMANAC FOR 1851.

This is a publication of which our rising Province may justly feel proud. In addition to the Astronomical, Meteorological, and such like information, annually found in the better class of Almanacs, it contains a mass of instruction relative to the recources and present condition of the country; commercial, Statistical, Educational and Ecclesiastical, carefully condensed, and thrown into a convenient form for reference. It is in truth a year book of useful facts, with which every body ought to become conversant. When we say that there are no less than 76 closely printed pages of valuable and important matter, with a well executed map, and all for the trifling sum of 7½d., the publication must be regarded as almost a miracle of cheapness; and for the sake of the public, as well as of the enterprising publisher, we heartily wish that it may become the inmate of every family in the Province. The "getting up" of this Almanac, as well as the facts which it contains, indicate a state of progress, of which Canada need not be ashamed.

MORTON'S CYCLOPEDIA OF AGRICULTURE.

We have already expressed our high sense of the merits of this *original* work. The most eminent men to be found in the walks of science and practical agriculture in Great Britain and elsewhere, are among its principal contributors. The 2d & 3d parts are before us and all that we have space for at present is a bare enumeration of the chief articles, which they contain. Analysis, Apples, Arboriculture, Artificial manures (a most elaborate article,) Ashes of plants, Atmosphere, Ayrshire Cattle, Barley, Barn Implements, Bran's Calender of Farm Operations; with a number of steel engravings of Farm buildings and implements, beside wood cuts; executed in the best style of the art. Interspersed with the above mentioned systematic articles, there are others occupying a brief space on plants, insects &c., that it is the interest of the farmer to know something about. We will ocasionally give our readers a treat from this valuable mine; strongly recommending each of them as desire as perfect and comprehensive a knowledge of the theory of Agriculture, as the present age can afford, to purchase the work; which may be had of Mr. Maclear of this City, or of any of his travelling agents. It is issued in monthly parts, by those well known publishers, Messrs. Blackie & Son, Glasgow.

STEPHEN'S FARMER'S GUIDE.

The 8th and 9th numbers of this useful publications have been received. With the 8th number commences Professor Norton's additions in the shape of an appendix. This department very much increases the already high character which this original work has gained in Europe, especially to farmers on this side of the Atlantic. Mr. Norton's notes form a sort of running commentary on the text, pointing out what American farmers should imitate or avoid, and supplying considerable additional information, adapted to the climate and wants of this Western continent. The work is for sale by Mr. Rowsell and Mr. Maclear of this City.

CHAIR OF AGRICULTURE IN THE UNIVERSITY OF TORONTO.

We are informed upon good authority, that Professor Nicol has given notice to the Senate of a Statute for filling up the Chair of Agriculture. The Statute, we understand, provides some fifty acres of the University grounds, free of any charge, for the purposes of an experimental or illustrative farm, to be subjected to the control of the Board of Agriculture, that is about being formed, under an Act passed during the last session of Parliament. There is now some hope, that our Provincial University, will soon become directly useful to the great mass of our community—the tillers of the soil.

☞ We again must request those indebted to us for this volume of the *Agriculturist*, to settle up with us without delay, as our printing expenses and paper bills are very large. The next number closes the volume, and will contain an Index.

TO CORRESPONDENTS.

J. H., Guelph. — Your enquiries respecting the Flax dressing machine, shall be attended to, and you will hear from us shortly.

TORONTO MARKET.

Nov. 7, 1850.

Our Market to day is but sparely supplied with most kinds of produce.

Wheat comes in but slowly, rules at a very low figure; good samples fetching 3s. 7d. per bushel of 60 lbs; the demand being only for milling purposes.

Oats.—There were one or two good parcels on hand, which were readily disposed of at 1s. 1d. a 1s. 3d. per bushel. Barley, for malting, very scarce.

Flour.—Miller's Superfine in bags by retail $4, per 196lbs: Farmers fine, 17s. 6d a 18s. 9d.

NEW YORK MARKETS.

New York, Nov. 6th.

Ashes in fair request; lases pots at 6.12, and pearls, $5.75.

Flour steady, $4.44 a $4.95 for pure Genesee

Rye flour steady at $3.18 a 3.25.

Corn-meal dull

Grain Wheat steady and in good request. Rye 75c. Barley 82 a 91c. Oats 40 a 41c. Corn 71c.

BUFFALO MARKETS.

Buffalo, November 6th.

Flour—Weater unfavorable for out door operations, but there was a good enquiry for flour at low rates.

Grain—There was a better feeling exhibited in the wheat market; white Michigan 77 a 80c.

CANADIAN AGRICULTURIST.

" The profit of the earth is for all; the King himself is served by the field."—Eccles. v. 9.

GEORGE BUCKLAND, } EDITOR,
WILLIAM McDOUGALL, } ASSISTANT EDITOR.

VOL. II. TORONTO, DECEMBER 1850. No. 12.

The Canadian Agriculturist.

Published Monthly, at Toronto, C. W.

TERMS:

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PROFESSORSHIP OF AGRICULTURE IN THE UNIVERSITY OF TORONTO.

Farmers of Canada; you who have subdued the forest and by your indomitable industry dotted over the country with comfortable homesteads and thriving settlements; you who are the main source of our wealth and prosperity, will soon, we are happy to hear, be directly represented in the highest Educational Institution in this Province. As intimated in our last, the authorities of the University are contemplating a plan for filling the chair of Agriculture, and converting a portion of the University grounds into an *Experimental Farm;* and by what fell from the Chancellor, at the meeting of Convocation the other day, we are led to expect, that these valuable objects will be speedily carried into effect. The press, as was to be expected, has favourably noticed the movement and we should hope, for the character and good of the country, that no factious opposition would be offered to its progress and successful termination. We are not in possession of the full particulars of the scheme which is now before the Senate; but we understand that it is proposed to place the whole of the University grounds, consisting of about 180 acres, under the superintendence of the Professor of Agriculture; whose duties are not to be confined to the delivery of class lectures on mere scientific, or even practical subjects, connected with husbandry and rural affairs;

but a sufficient portion of those grounds that are already cleared of timber, comprising some 70 or 80 acres are to be devoted to the purposes of experimental and practical farming. The land is to be given up for a term of years free of charge to the Professor, subject to the control of the Board of Agriculture;—an important, and what it is hoped will prove, a most useful instrumentality, that is about being organised under the provisions of an act of the Legislature, passed last session. We learn upon good authority that the Government will recommend to Parliament a sufficient grant of money for carrying out the important objects of the Board, and for sustaining with increased vigor the Provincial Association. The country should distinctly understand that this is no mere political movement for party purposes; its object is purely patriotic, and it should enlist the sympathies and support of all who sincerely desire their country's welfare. We live in an age and are now placed in circumstnnces, which imperatively demand, that the improvement of agriculture, the main source of our wealth, should receive the earnest attention and support of the Legislature, irrespective of what party may control the helm. Many other countries, our near and enterprising neighbors in particular are prosecuting this object with an earnestness and intelligence that cannot fail of success; and amidst the increasing competition of the civilized world with the markets of the mother country equally thrown open to all, it will not do for Canadians to fold their arms in listlessness, and to stand still, while the rest of the world is rapidly moving onwards. Not a moment ought to be lost. We must be up and doing; bringing willingly to our aid whatever science or experience can suggest for increasing the fertility of our fields, and for developing those great natural sources of wealth and enjoyment, which a bountiful Providence has placed within our reach.

The recognition of the claims of agriculture by the University, cannot fail to render that important Institution more popular and useful, in a country where four-fifths of its inhabitants are engaged in the cultivation of the soil. The social *status* of our farmers will become elevated, by associating the Science and practice of their pursuits, with a liberal course of academical learning; while existing systems of farm practice, will be necessarily improved, by imparting to the young, sound, practical knowledge, and the results of carefully conducted experiments. We will now proceed to give our views of this matter a little more in detail.

In the first place, whatever is attempted should bear upon the face of it, the stamp of *practical utility*. The lectures of the Professor on the theory and practice of his art, ought to be fully illustrated, not only by diagrams, specimens and models, but especially by frequent reference to the daily operations of the farm. The merely pointing out the application of some of the laws and doctrines of chemistry, geology, animal and vegetable physiology, &c., to the pursuits of the farmer, however interesting and suggestive as many of these undoubtedly are, would be quite a different thing from the practical teaching of agriculture as an *art*. The principle on which a Professorship of agriculture should be founded in the present day, according to our notion, is that of *Practice with Science*.

This leads us to remark upon the advantages of an experimental farm, which without the most careful and elaborate teaching in the class room would loose the greater portion of its practical value. By an experimental farm, however, we do not mean what is commonly understood, a *model* farm; two things that are very distinct but frequently confounded. The first is chiefly designed for testing the adaptation of new kinds of agricultural productions to certain conditions of soil and climate; a number of experiments are being conducted at the same time, and every thing of moment relating to them is carefully observed and recorded. Such investigations are in themselves extremely interesting, and open up broad views of the nature and relations of agriculture, both as a science and an art; and should only one experiment in a hundred, or even a thousand be successful, that is, be the means of introducing into general culture, some fresh production or improved variety, suitable to our soil and climate and the demands of the market, the benefit to the country might become positively immense. Besides, in experimenting there is frequently as much to be learnt from failure as success; fresh light is often thrown upon matters, which were before obscure; anomalies become reconciled, and the path of investigation, leading to future discoveries, is rendered more direct and easy.

How different is it with a *model* farm, or in other words, a farm consisting of a specific soil, in a certain relative situation as to climate, markets, the price of labor &c., and managed, in all its departments, solely with a view to the maximum of money profit. Such a farm might well be considered a model, that might be safely followed by all farmers, who happened to be placed under *similar conditions*. But it must be plain at once, to the most ordinary reflection, that in an extensive country like Canada, possess-

ing great diversities of soil and climate ;—some sections of which having already an exhausted soil, while others have scarcely yet been turned over by the plough ; with great inequalities as to markets and the pecuniary means of farmers ; that what might very properly and safely be regarded as a model farm, in one township or county, might be altogether inapplicable to the situation and exigencies of another.

"*Model farms*, (observes Mr. Stephens) have been recommended to be established with a view to promote the teaching of practical agriculture. I do not comprehend what such a model farm is—for a farm which is laboured by pupils can show a model of farming to no one ; and any farming practised by a body of men having the management of a school, will be greatly eclipsed by that of many a single farmer, and it, therefore, in justice to farmers, cannot be recommended as a model. Schools established for teaching agriculture, should have attached to them what may be termed *instructive*, not *model* farms. * * * * Were a pupil, trained on an ordinary farm, to have opportunities of witnessing varieties of experiments on an *Experimental* one, he might benefit by the numerous hints and suggestions he would receive ; and, on the other hand, were an Experimental farm wrought only by inexperienced pupils it would be injured. So far from *pupils* being able to conduct experiments, the most experienced cultivators are baffled by unforeseen difficulties, and were it known that the experiments on such a farm were conducted by pupils, their results would inspire no confidence in farmers."

An Experimental farm, such as would benefit the country and afford the means of instruction to pupils, could not in itself be made a profitable concern. We would therefore suggest that it should be commenced on a small scale ; fifty acres for *mere experimental purposes* would be sufficient for a beginning. The University grounds contain, we understand, about 180 acres ; the greater portion of which consists of park and shrubbery. We would strongly urge that the ornamental portions be held sacred, that no vile brick and mortar should be permitted to mar those beautiful avenues, which ought to be the pride, as all strangers pronounce them to be the ornament of Toronto. If the park were improved by being levelled and drained ; the young trees thinned and tastefully set out in groups, and the whole seeded down with nutritious grasses, it would yield a considerable money return for pasturage ; and the University might boast of possessing grounds, which for extent and beauty, would be unsurpassed, if not wholly unapproached by any similar institution on the continent of America. Nor in our opinion would the picturesque effect of the scene, as a whole, be at all lessened, by devoting some fifty or sixty acres which are already free from trees, to objects more in accordance with the utilitarian spirit of the age.

We like the idea of placing the Experimental Farm under the management of the Professor, in connection with the Board of Agriculture, which will be a popular and responsible body, chosen by the Directors of the County Societies ; and which will also have the management of the Provincial Association. Beside an annual importation of grain, grass seeds, &c., from abroad, for the purpose of testing their suitability to this country, it would be desirable to procure, in small quantities, most of those substances which an advanced husbandry employs as manures, if it were only to afford pupils an opportunity of witnessing their effects and mode of action.

An agricultural museum would form a very desirable appendage to an illustrative farm ; comprising a collection of improved implements and machines ; roots and plants, both wild and cultivated,—thus illustrating the geology and botany of the country. Prize specimens of grain, &c., would also be suitable for such a purpose. A museum of this kind might be formed gradually without incurring any very serious expense. Implements, &c., might doubtless be obtained of the different manufacturers, both in Canada and the States, for the purpose of exhibition ; many of which would find a ready sale. Their merits should, as far as possible, be practically tested on the farm, that farmers might have the benefit of the knowledge thus acquired, before they purchased. An agricultural Library would be a valuable auxiliary, and this likewise might be collected by degrees, without a great pecuniary outlay. Donations of books from various quarters would no doubt be received ; and as the Board annually make their Report, to Parliament, a report embodying all that is interesting in relation to the various Agricultural Societies in the Province and the Experimental Farm,—it should be sent as soon as published to the principal Agricultural Associations, both in Europe and America, in exchange for their respective journals.

Upon the whole, then, we consider this to be an important move in the right direction ; and that it will meet with the hearty approval of the intelligence and right feeling of the country. Without efforts to develop the productiveness of the soil, and to attract to our shores, settlers having both means and industry, it will be mere folly to attempt the construction of either railways or ca-

nals; which, without a flourishing agriculture, would be left without business, and consequently without profits.

We cannot do better than close these observations in the words of Professor Norton, of Yale College, a name with which most of our readers are already familiar.—[*The Farmer's Guide, Editor's notes, page 2.*]

"An attendance of two or three months in each year upon courses of lectures, relative to scientific agriculture, would expand and cultivate the mind, would open new sources of interest, and enable him to reason upon the various processes which he had observed during the summer. This would not injure him as a practical man; on the contrary, it would tend directly to his success. Labor during the usual season of occupation in the open air would invigorate the frame, as a winter's study would strengthen the mind.

"Farmers may write and talk about the elevation of their class for centuries to come, as they have done in years that are past; but they may rely upon it, that education is the only true road to that which they desire. Until they are ready to provide the means of regular instruction in the art of agriculture for their sons, mental instruction as well as physical, they will always be compelled, as heretofore, to submit to the lead of lawyers, manufacturers, literary men, and members of other professions, in which a special education is considered absolutely necessary to distinguished success.

"An institution which should unite practical with scientific teaching, if properly organized, would be the best of all preparatory schools; for there the union of instruction with actual work would be complete. Such establishments have hitherto, for the most part, been mere manual labor schools, with only the name of science. We may hope that a better day is coming; that we shall soon see institutions capable of imparting every description of knowledge that is to be desired by the practical man, and in addition to this so organized, that by means of extensive researches, conducted by men of undoubted ability, they may at the same time advance the range of our knowledge, and command the respect of every class in the community."

Two Lectures on Agricultural Chemistry;

By Henry Youle Hind, Mathematical Master, and Lecturer, in Chemistry and Natural Philosophy, at the Normal School for Upper Canada. Toronto: Hugh Scobie, King Street, 1850. Price 1s. 3d.

This little work, we are informed in the preface, contains the substance of lectures on Agricultural Chemistry, delivered by the author during the past summer at preliminary meetings for the formation of Teachers' Institutes, in various County Towns of Upper Canada; and he now presents it to the Farmers and Schoolmasters of this country, "with a hope that it may assist in calling forth a spirit of judicious enquiry, among the many intelligent and enterprising members of those numerous communities."

The author's style is smooth and perspicuous, and he has been successful in condensing a considerable amount of scientific information that is both interesting and useful to the practical farmer. The work without making any pretension of being an introductory, or systematic treatise, may be read with profit by persons having no previous acquaintance with Chemistry; the leading principles and doctrines of that beautiful and comprehensive science are expounded in a popular manner, and their applications pointed out to the cultivation of the soil, the raising of plants, and the management of animals. There can be no doubt that chemistry is silently influencing and improving the practice of the enquiring agriculturist; but the sanguine expectations held out by amateur farmers, political economists and some scientific men, a few years since have, as yet, fallen far short of realization. Although it may be difficult to trace any great agricultural improvement directly to the suggestions or teachings of science, strictly so called; yet it admits not of denial that both the theory and practice of agriculture have of late years been greatly improved; and that the researches of the chemist have proved higly suggestive and beneficial to the farmer, particularly in reference to the composition and application of manures.

We feel much satisfaction in recommending to the notice of our readers Mr. Hind's Lectures, and quote for their perusal a few of the concluding paragraphs.

Let us in concluding, take a cursory view of the several conditions of vegetable life and health, which unite with the operations of husbandry in establishing the results of which the Agriculturist is in quest. He can exercise no control whatever over the air plants and animals breathe; and yet many of the most terrible visitations he fears are dependent upon the condition of air. Upon its state, rests the appearance of Rust, Mildew and

many parasitical insects, all of which lead most effectually to destroy the anticipated results of his industry. The condition of perfect humidity in a warm atmosphere, at certain seasons of the year, will suffice to cause his crops to be clothed with the most destructive of microscopic plants. This humid state may occur in March, April, September, &c., without being the cause of prejudicial results, if it happen in May or June great danger is to be apprehended. From observation, we learn, that luxuriant wheat grown on rich moist soils is very liable to be struck with Rust or Mildew. This is often the case on fertile river bottoms—on the rich bottoms of the Thames &c. It is also remarked that in late seasons Rust is most destructive; that the time when it strikes the plant is generally in the month of June—if late in that month, the straw only suffers, if early, straw and grain are both lost. Now, as the humidity of the atmosphere is beyond the control of man, he must adapt his labours to the circumstances of the climate. He must endeavour to have an early crop—with a thin, strong, flinty stem. It has been before remarked, that the means for ensuring the ripening of wheat, from two to three weeks earlier than the average period, are to be found in draining and liming, both operations, besides ensuring early maturity, improve the sample and strengthen the straw.

The agriculturist is dependent upon other meteorological phenomena, with the due occurrence of which, the health of his crops is most intimately associated; upon rain and temperature. He has occasionally to deplore the occurrence of dry weather in the spring, and of wet weather in the harvest time. The seasons of the present year were particularly distinguished by these drawbacks. Those artifices which are commenced by experience and suggested by the science of agriculture, present him with the only means capable of lessening the amount of evil flowing from such casualties. On drained soils, the roots of cultivated crops descend deep, and find in dry weather a supply of moisture. Their early maturity saves them from that destruction which is always more or less to be lamented in wet harvests. In backward and wet seasons, the grain crops lose many days of warm spring weather on undrained soils, before they commence growing. The heat of the sun must first drive off the superfluous water, which is lodged in every hollow and depression, although it may not be visible at a superficial view. Cold rains invariably check the growth of vegetables, and a cold watery bottom (pan) to the soil in which the roots repose, can never be expected to favor the growth of a healthy plant. The appearance of yellow leaves upon wheat in the spring, is the result of disease, and may be produced by excess of moisture or by excess of drought. It has been already shown, under the head of draining, that that operation greatly increases the temperature of the soil, by allowing warm air to circulate through its pores. Vegetables do not necessarily thrive when the surface of the soil is exposed to a great increase of temperature; it is when heat descends to the roots that they feel its invigorating influence. The warm sun of April and May cannot produce the same effects in vegetable mould, as upon one of a light, sandy, porous character.

We have seen that uncultivated vegetables derive a very large portion of their substance from the admixtures of air, carbonic acid and ammonia. Cultivated crops obtain these elements of food, not only from air and decaying vegetable matter, but also from manures. That department of husbandry which involves the production, preservation and application of manure, necessarily calls for the careful attention of the agriculturist. Chemistry and experience both set their mark upon farm-yard manure, as constituting the most useful means of improving the fertility of the soil; and of farm-yard manure, the liquid portion, the urine of animals, is unquestionably the most valuable. The solution of mineral ingredients in water, previously to their entrance into the roots and system of vegetables, directs particular observation of the soils, and the properties possessed by their component parts. It appears that the same kind of vegetable growing for a succession of years upon the same soil, abstracts certain soluble mineral ingredients, faster than the great agents, heat, air and moisture, can create a supply from the vast store which exists in an insoluble state in the soil. Hence the vegetable cultivated under such circumstances, becomes deteriorated in quality, and approaches nearer and nearer to that primitive, wild state, in which its kind existed before cultivation produced the wondrous developement of its organs which fit it for the food of man. (Witness the wild potato, the plum, wild rice, wild wheat, wild oats, &c.) To avoid this deterioration, experience and agricultural chemistry point to rotation of crops, fallowing under certain circumstances, farm-yard manure, mineral manures, as lime, wood-ashes, gypsum, &c.

The growth of weeds among cultivated crops, is an increasing and serious evil. Nourishment which, in their absence, would find its way into farming produce, feeds them into a luxuriant and fruitful habit, which at once suppresses the growth diminishes the yield, and impairs the sample of those vegetables for whose benefit all the artifices of husbandry are expressly practiced. The use of clean seed, the practice of clean cultivation, of draining, and of rotation of crops, can alone eradicate those hurtful vegetables, which, from past neglect, seem now to be successfully struggling to gain exclusive possession of many fertile tracts of country.

The cold of winter is sometimes so severe, that the wheat plant loses its vitality, even on drained soils. This happens when there is a deficiency of snow. A covering of snow prevents radiation of heat from the earth into the clear expanse above. The temperature of two plants, one exposed to air on a fine clear cold night, the other covered with a very loose coating of straw, differs by many degrees. A few loads of long dung or litter, strewd over the wheat in the month of December, will retard radiation, and prevent the temperature of wheat plants from sinking so low

during severe winter nights, as to endanger their vitality. Lastly, the economy of a farm cannot in general be preserved without a due proportion of stock for the production of manure, and the preservation of a judicious rotation of crops."

VILLAGE LECTURES.—No. 1.

We insert from the London Agricultural Gazette, the following and succeeding lectures on Scientific and Practical Agriculture, which, from the simplicity of the language in which they are expressed, and their general utility to the farmer, we trust will be acceptable to a large proportion of our readers:—

The Soil and the Air.—The soil and the air, in connection with agriculture, have no immediate bearing upon their daily pursuits; and whether the influences which thus affect the practice of the farmers be capable of satisfactory explanation or not, the practice and profit of their own individual occupations will remain precisely as they hitherto have been—undisturbed by those particularlar truths which our subject includes. This subject, however, I am persuaded is not the less appropriate on that account for general consideration. It is one of general interest, not only because the air we all breathe and the soil we all tread cannot, but in some measure, affect us all alike, but because the usefulness of knowledge of this, as on every other subject, is not measurable by the pounds-shillings-and pence scale, which would confine it to those cases exclusively where a money result depends upon the possession of it. There is a usefulness besides that which immediate profit measures; and though the agriculturist should not, and others could not, earn the more because they know the more of the air and the soil in connection with the art of cultivation, yet such knowledge is beneficial to all as addition to mental if not to material wealth—as food for the mind, which, like the body, can live only by appropriate nourishment—as matter for pleasurable thought, from which, as from all other topics, we may usefully draw the unfailing inference regarding the wisdom, skill and power, and goodness which creation everywhere exhibits.

But if the soil and the air, in connection with agriculture, may reasonably claim the attention of all, it seems to force itself upon that of the farmer, and it is in that aspect of the subject, almost exclusively, in which it appears to him, that I have now to ask your attention. It certainly must have sometimes occurred to those who cultivate the ground and superintend the growth of crops, to ask where these crops all come from. Do you think that they come out of the land—from the soil on which they grow? Let us just consider this question in detail. Take the case of a forest of trees. Did all that wood come out of the soil? Suppose a man to plant an acorn in a piece of clay land and watch its growth. He sees the shoot and the young tree increasing in size, and if he should live long enough, he would ultimately see the old tree with its trunk, its branches, and its twigs, containing perhaps 40 or 50 tons' weight of wood—a result of the life which was resident in that little acorn. Where did it get that wood? The roots of the oak grow downwards in the earth to a great depth—do they find its woody matter there? They also spread on the surface to some extent, but do you think that there is enough of the woody charcoally matter to furnish the material of that great tree? It was a poor clay when the acorn was planted, and no one has been near the place since to supply the growing plant with the matter it wanted. We may suppose the tree to have stood in a forest near which no dung cart ever went, so that no supply of food for the plant could have reached it beyond what existed when the seed was planted, and then the soil was very poor, and contained none of the material which has since appeared in the stem and leaves, and branches of that great tree. How did they obtain it? The thing certainly appears difficult of explanation.

Take the case, too, of any of our common crops—of our grass lands, for instance. Let us imagine the case of a dairy farm of 100 acres; we may suppose it to be able to maintain a herd of 30 cows. What will such a farm produce in a year? Suppose it to be good land, able to keep a stock of good sort. Perhaps I shall not be far wrong if I put the produce of a cow at something like 3½ cwt. of cheese, and 30 or 40 lbs. of whey butter every year; and besides this there may be some bacon made from the waste of the dairy. Well, then, a farm of 30 dairy cows will yield nearly five tons of cheese, and eight cwt. of butter in the year, besides this bacon. That quantity of butter and cheese are exported annually from that extent of grass land. Now, where did that butter and cheese come from? Have they been made out of the substance of the cows? They are as heavy now as they were. It has not been made at the expense of the cows—any more, indeed, than the wheat or the barley, which comes from the threshing machine, is made, at the expense of the machine. The cows are merely the machines by which the cheese is made out of the food they eat, and just as the wheat is in the rick that is being threshed, so the cheese resides in the grass that is being

eaten. Well, then, where does the grass get it? From the soil, do you think? Just consider; take a hundred years—what has been added to the soil of that farm during that period? Hardly anything; the farmer may perhaps have bought some bran and some meal every season for the pigs; but then he has sold the bacon made by his purchases, so that the farm has lost as much as it has gained, in that respect. He has bought no manure. It will not do to say the farm continues to yield the grass because of the manure that is added, for none has been added to farm. Manure, has, no doubt, been added to the field, but none has been imported from without the farm, and yet, five tons of cheese have been exported every year; and how has that great draught upon the farm been maintained without loss? The manure that is applied to the field helps the grass greatly; but it cannot supply the cheese I speak of; for you must acknowledge that the manure is just what remains of the grass after the cows have taken the butter and cheese out of it, so that every year, the land is robbed of so much cheese; that is, if the cheese be in the soil. But can you believe that it is? Can you believe that every year, the soil of this farm is the poorer by five tons of cheese than it was? Why, how long had it stood this waste? If we suppose that it has been yielding at that rate during 1,000 years, there must have been 5,000 tons of cheese in the soil of that farm—50 tons of cheese in every acre of it, at the beginning, and if anything, the farm is more fertile now than it was then—fuller of cheese, no doubt, than ever; so that for all we know, there must be thousands upon thousands of tons of cheese in it still. Ah! but that explanation cannot stand; we cannot believe that the wood of our trees, or the cheese, or the butter of our dairy farms comes out of the soil. Where do they come from then?

Now, before attempting to answer this question, let us take the case of an arable farm. Suppose we take our own, at —— for instance. It contains about 272 acres of land—off 120 or 130 acres of it, every year, we cut a crop of wheat, which may average from 32 to 36 bushels of wheat per acre; and besides these, 4,500 or 4,600 bushels of wheat, we sell annually, probably, ten or eleven tons' weight of beef, mutton, and bacon; that is, the animals we sell off, are, on the whole, heavier by that weight, than they were when brought on. We buy some 100 or 300 bags of meal and linseed as food for the live stock every year, so that much is added to the soil every year, and that may account for 500 or 600 bushels of wheat we sell off; but where do we get the 4,000, and where does all the beef and mutton that we sell, come from? It will not do to say that it comes from the manure; for set a watch upon the entrance gate of the farm, and count what goes in and what comes out of it in a year; hardly any manure goes in, and you will find that 4,000 bushels of grain go off the farm in a year, and you will find that ten or eleven ton's weight of meat go off the farm more than comes on it in the year. Where does all that food come from? The question is, whether or not it can be supposed to come from the soil.

During the past ten years, we must have sent off the farm 30,000 or 40,000 bushels of wheat, and 100 tons of meat. I take our own case as it is, the only one I am perfectly acquainted with; but any cultivator of the soil will, if he looks back a few years, have to acknowledge the same remarkable truths in the case of his own farm. Do you think that all that bread and beef came out of the land! Why, the land is richer and better after all that has been taken out of it than it was before; and if it be kept in cultivation for years to come, it may yield hundreds of thousands of bushels of wheat yet; they are not there now, most certainly,—where will they come from? Neither the wood of our trees, nor the dairy produce of our grass lands, nor the grain and meat of our arable lands can be supposed to come from the soil. If all the wheat, oats, rye, barley, beans, peas, bacon, butter, cheese, beef, mutton, and so on, that England has produced since it was first cultivated, were piled upon the land now, it would be more than a foot deep over the whole island. Deeper than the soil itself is, on the average, over the country. And should things remain as they are for another 1,000 years, the land will have yielded another such lot; that is, more food in point of bulk and of weight, than the soil itself actually is. Where has it, where will it all come from? That is the question. (The answer will appear in our next number.)

TRIAL OF SUB-SOIL PLOUGHS.

On last Tuesday, 12th inst., a trial was made of the comparative merits of a sub-soil Plough manufactured by the firm of Rapelje & Co., of Rochester, in the State of New York, and one of English manufacture, made by Read. The trial took place on the farm of J. B. Marks, Esq., near Barriefield, Read's Plough is the property of Charles Penner, Esq., of Lachine, the one which was exhibited at the Provincial Show, held in this City in 1849, on which occasion the first prize was awarded to one of the Rochester made ploughs. Read's plough carries the palm in England, as making by far the best work of all

the sub-soil ploughs brought into competition with it there.

The undermentioned practical Agriculturists were present by invitation of Mr. Marks, to witness the trial, viz;—Charles Penner, Esq., Dr. Young, of the Garrison, W. Ferguson, Esq., W. Holditch, Esq., A. Cameron, Esq., W. Wilson, Esq., Thomas Briggs, Esq. Mr. W. Starks, Mr. A. Laidlaw, Mr. James Cowan, and Mr. John Dunn, who unanimously decided in favor of Mr. Penner's Plough, as being lighter of draft, easier to hold, and more thoroughly breaking up the soil, without bringing too much towards the surface. It is to be hoped some of our plough manufacturers will embrace the present opportunity of making application to Mr. Penner for this plough, to take patterns by, and thereby supply their customers with the best articles as yet known of this most valuable farm implement. The day was highly favourable, and no pains were spared to do every justice to investigations. The approved Plough while cutting to the depth or six inches under the bottom of the previously cut furrow, was drawn by one horse, and that a light one, while the other plough was drawn by four yoke of oxen and one horse in front. The business of the day was closed at the hospitable board of Mr. Marks, who on this, as on every other occasion, evinced his zeal in the improvement of the agricultural affairs of this country.—*Argus.*

WHY IS THE GARDEN MORE FERTILE THAN THE FIELD?

The universal answer to this question, is, because it is more highly manured, and therefore has a *richer* soil. This is not always the case. But it is owing to the finely pulverised condition of the beds, that gives it a highly absorbient power to attract moisture from the atmosphere—a source of fertility that many farmers scarcely seem aware that they possess. If the soil of the field were as carefully worked, and fresh earth constantly exposed to the atmosphere, as in the well-tended garden, the land would increase, rather than deteriorate in fertility. Let the rule be, "plow deep, cultivate well, pulverise lumps and sods, and return the straw to the soil," and you may carry off an immense quantity of human food, and still have a fertile soil remaining.

Plants, in their nature, are organised beings. By means of their roots they take up food from the soil—and often, the very food which the soil has taken up by its power of absorption from the atmosphere, and which power is increased to an almost indefinite extent, by disintegrating the particles of which it is composed. The very act of plowing and harrowing, is an act of manuring. The act of stirring the earth, in times of drouth, serves as a watering of the plants. The moisture thus absorbed is loaded with a fertilising power that is lost upon a hard surface, for it lacks the power of absorption.

If, then, you would have your fields as fertile as a garden, you must not depend alone upon manure, but pulverise freely, not upon the surface alone, but deep below it.

WATER OXEN.

We notice the arrival from Constantinople, per bark New World, via Liverpool, of two pair of Asiatic buffalo calves, or as they are generally called in the books "water oxen."

These animals have been imported by Dr. Davis, for Mr. Williams Middleton, whom we understand, some time since adapted, (by wire fencing,) a large extent of land for the rearing of cattle, and in which he has about one thousand head, sustained entirely by the natural resources of the land, not only giving him a large revenue, but adding greatly to the supply of veal, butter and beef markets in our city.

A pair of these water oxen brought out by Dr. Davis over a year since, are really objects of curiosity, (and of course of corresponding promise,) from their remarkable fatness, and this from feeding on the marsh grass of the Doctor's farm. Mr. Middleton has, in his enclosure, a great deal of this marsh land, now valueless, which, we believe, he is now about to turn to good account with these animals.

The water oxen disregard mud or bogs, and are hence well adapted, as working oxen, in such lands. A great part of the day they spend in Ashley River and an artificial pond on the Doctor's farm, with only the nose out of water. They grow to an enormous size, the cows, tolerable milkers, and very fair as beef cattle.

We are thus particular in this notice, hoping that the planters on our extensive marshes and rivers, where the freshets are so destructive to cattle, will examine into the capabilities of these animals, and avail themselves of this facility of importation.—*Charleston Mercury.*

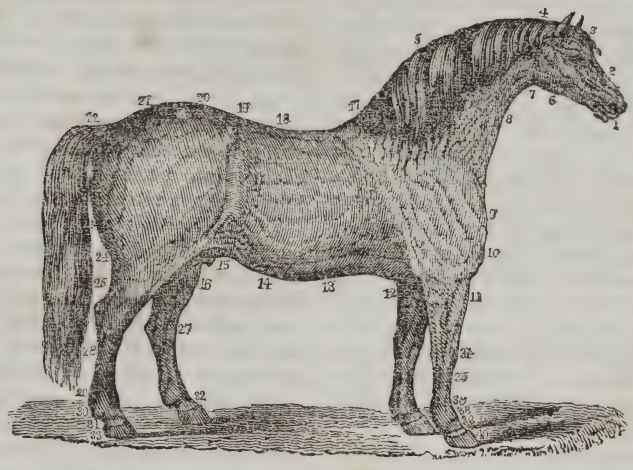
CERTAIN CURE FOR FOOTAIL IN SHEEP.

The following receipt was handed to me by Mr. Thomas Wilkinson of England. I tried it successfully myself, and feel confident in recommending it to others as an effectual cure for this troublesome disease.

Take of quicksilver, one ounce, aquafortis, (nitric acid) two ounces, and put them together in a glass bottle; place it in the sun, or in a warm place, with the cork out till dissolved, when it is ready for use; cut the hoof away, as far as diseased; dip a feather in the mixture, and be careful to annoint the diseased part all over. After this, keep the sheep in a dry place for eight or ten hours.—They seldom require more than one dressing if properly done. It will be necessary, also, to wet the feet of the sheep not diseased, with turpentine, to prevent it speading further amongst the flock.

HUGH EATON.

N. J., Sept., 1850.



TERMS DENOTING THE EXTERNAL PARTS OF THE HORSE.

1. Muzzle.
2. Face.
3. Forehead.
4. Poll.
5. Crest.
6. Jowl.
7. Gullet.
8. Windpipe.
9. Point of the Shoulders.
10. Breast or Bosom.
11. Arm.
12. Elbow.
13. Girth.
14. Flank.
15. Sheath.
16. Stifles.
17. Withers.
18. Back.
19. Loins.
20. Hip.
21. Croup.
22. Dock.
23. Quarter.
24. Thigh or Gaskin.
25. Hamstring.
26. Joint of the hock.
27. Ham or Hock.
28. Common.
29. Fetlock.
30. Large Pastern.
31. Small Pastern.
32. Coronet.
33. Hoof.
34. Knee.
35. Common.
36. Fetlock.
37. Heel.
38. Large Pastern.
39. Small Pastern.
40. Hoof.

THE HORSE.

The Anatomy of the Muscles.—The bones of the whole body constitute a frame-work to which the numerous muscles (which are concerned in, and are the means of the various motions of the animal) are attached. The bones are not smooth, but have an uneven surface, and present depressions and elevations; these elevations are like nipples, and are called nipple-shaped processes, or tubercles, the muscles are attached. The bones are levers, and the power of their motion is the muscles.

In our discussions we propose to direct attention mainly to those bones and muscles only which are concerned chiefly in the travelling, carrying, and drawing motions of the horse. These bones and muscles are mostly those of the body and legs, and consequently the body and legs, in their bony and muscular anatomy, will be treated of. We content ourselves with an enumeration of the bones of the head, as the head is only in a small way employed in motion of draft. The power it has over either arises from its elevation or depression. When the horse increases his pace he lowers his head, if it be free; when he is called on for greater exertion in draft, he also lowers his head. Without this depression of the head, and that to the level of the body, he cannot reach the height of his speed, nor the utmost of his power or draft. In ordinary motion or draft, the head is not so low as the level of the body, it is only in his higher and more powerful exertion, in either speed or draft, that the horse brings his head to the level. It is then the position of the head, and not its power, which is concerned in motion or draft. Consequently, in animal mechanics, it is relatively of small consequence. The head is not even held up in its natural position by the muscle, but by a strong ligament or cord called the pack-wax, which is attached to the head at one end, and on the withers at the other, and hence into the muscle of the back. When, however, the head is to be depressed, the muscles of the neck and shoulders are called on to do it. Thus the bones and muscles of the neck, as well from their shape as from their size, are of importance in the power of the horse for motion.

Muscles of the Neck.—We shall first consider the muscles of the neck. They lie chiefly in the lower part of the neck, and end in tendons at or near the head. Those concerned in the

raising and lowering of the head and turning it in various directions, make a complicated system. Two of the most important of them are the *splint-like* muscle and the large complicated muscle. The splint-like muscle constitutes the bulk of the neek on its upper side and is attached to all the bones of the neck except the upper one, called the *atlas*, nearest the head. From this muscle a tendon goes to and attaches itself to the atlas and the bones of the temples. Its office is to elevate the head and neck, and for this it is very powerful, as it must needs be; upon it depends the beauty of the neck. As it is more or less arched, but it should be light above, and large below and at the junction of the neck with the shoulder. From it arises the thickness and muscularity of the neck, and if full at the lower part and light at the upper part of the neck, the neck itself when joined well to the head, will be perfect. Clumsy necks arise from too much cellular substance or fat, and not from this muscle, as also do lofty crests. Mares and geldings rarely have clumsy necks or lofty crests.

The large complicated muscle is the largest and most powerful in the neck. It arises from the five lower bones of the neck, *d*, *e*, at its upper part, as it nears the head, it lessens its bulk and unites in part with the same tendon as the splint-like muscle, but is principally joined to the bone of the back of the head. It assists to raise the head and neck, and it is particnlarly concerned in raising and thrusting forward the nose. When too powerful, it makes the nose *stick out*, and deforms the horse. The martingale is used to counteract the force of this muscle. When this muscle is very large and the splint-like one quite small, the horse will be ewe-necked hollowed (or at least straight) above and projecting below. In such a neck the nose protudes and can hardly be got down.

The Muscles of the Neck.—The *small* complicated muscle, the *straight*, and the *oblique* muscles of the upper part of the neck, attached mainly to the two upper bones of the neck, are also employed in raising the head.

One of the muscles used to lower the head is attached to the breast bone, and lies next to the skin; it proceeds up the neck, and near the head changes into a tendon, and is inserted into the lower jaw near its angle, *b*. It is used to bend the head towards the chest. Another muscle concerned in lowering the neck, springs from the back of the head, and the first or four upper bones of the neck, and the pack-wax proceeds downward, mixes with the muscles of the shoulder, and attaches itself to the lower shoulder bone; it also assists in raising the shoulder.

The muscles of the neck are all double (in pairs,) one on each side of the neck. To raise or depress the head they must act together. To turn the head and neck to one side, one only must act, on the side to which the head and neck are to be turned; if an elevating muscle, then they will be turned at the same time; if a depressing muscle then lowered and turned. Thus is provision made for every kind of motion of the head and neck.

Muscles of the Breast.—The muscles of the breast are very important. They are largely concerned in the expansion of the chest; and are the power by which the arm in rapid motion is confined to the side, and thus keep the leg in a straight line before the horse. The chief of these is the pair of *transverse muscles* of the breast, They form two full points in the front of the upper and front part of the breast, consistng of the four first bones of the breast and are attached to the lower end of the lower bone of the shoulder, extend backward between the legs, pass across the inside of the arm, and reach from the elbow almost to the knee. These muscles act to place the fore legs in that position, which will allow them to receive the weight of the body in the easiest manner, and with the least shock.

The *great* and *small muscles* of the breast lie above and behind the transverse muscles; they extend from the breast bone to the arm of the shoulder. Their office is to draw back the point of the shoulder and bring it into the upright position. There is still another muscle which goes from the breast bone to the shoulder blade. It assists in the same office as the great and small breast muscles. It is less in size than either of the others. A horse not well developed in the muscles of the breast will be deficient in power. He will not have the power to expand perfectly the chest, so that the lungs must suffer, taxed by

violent motion to increased action; and this even if the lungs be large enough. Nor will the horse be able to use his fore leg to advantage. Their breast muscles must be large to allow the horse to avail himself of the full power of the muscles which are used to propel forward his carcase. The progressive muscles have enough work of their own to do, and will not long last if called on to do that of other parts. These breast muscles have more to do in supporting the weight of the body and giving direction to motion than in creating motion; if they be not competent to their office, other muscles are called upon to overwork themselves to supply the deficiency, viz; the muscles of the shoulder and haunch in motion, and the muscles of the belly (abdominal muscles) in breathing. Then the breast muscles should be large to produce and preserve a proper balance both in action and breathing.

FRENCH CONTRACT FOR ENGLISH CAVALRY HORSES.

For the last few weeks a great number of English horses have been exported to France, on account of the French government. There are several agents at present in this country for the purpose of making some very large purchases of chargers for the remounting of the French cavalry regiments, both heavy and light. The contract is for 12,000, at the price of £25 per horse, for the light cavalry, and £28 per horse for the heavy troops—Cuirassiers, Carbineers, dragoons, artillery.

The above paragraph we cut from one of our English papers. It teaches the farmer the advantage of rearing an improved stock. Here is France with a much larger and more fertile country, and yet she is tributary to her great rival, England, for the well mounting of her cavalry troops. What a disgrace to France this is, and what honor to England.

At the famous battle of Waterloo, one regiment of English cavalry was so superior to any in the French lines, that in every charge, they easily rode right over the French horses, completely discomfitting them with scarce the necessity of pulling a trigger or drawing a sword. It was the superior breed of the English horses, alone, that enabled them to accomplish this.

There is nothing superior to a first-rate American horse; and if our farmers will only breed from the best animals, we should soon have such a numerous stock in thecountry as the world never yet saw, out of Arabia.—*Am. Agriculturist.*

To Measure Hay in Stacks,—"More than twenty years since," says an old farmer "I copied the following method of measuring hay, from some publication, and having verified its accuracy, I have both bought and sold by it, and believe it may be useful to many farmers, where the means of weighing are not at hand. Multiply the length, breadth, and height into each other, and if the hay is somewhat settled, ten solid yards will make a ton. Clover will take from ten to twelve yards per ton."

Portable Steam Engine for Farm Purposes.—This engine is a beautiful piece of mechanism of half-horse power, working to a charm. It was operated in the hall, and attracted great attention. It propelled a grindstone, lathe, straw cutter, &c., working with ease at from 500 to 800 revolutions perminute. With it, a farmer might saw his wood, cut his straw and hay, grind his tools, steam his potatoes and other feed with the surplus steam, and while thus operating, save the labor and board of two or three men. It is well worthy of careful attention, and if durable, of general encouragement. It requires from 1 to 1½ cents' worth of fuel per hour, to propel it, and costs only $75.—*Trans. N. Y. Ag. Soc.*

Storing winter Cabbages.—Such cabbages, at the extreme north, as you wish to keep through the winter and early spring, may be pulled up by the roots, and arranged in compact rows, with their heads downward, resting on the surface of the ground, so that their stalks will stand upright in the air; then, they may be covered with straw and earth, and treated in every other respect as directed for root crops. Should the weather be unusually warm, the earth and straw should be opened to let in air.

STORM GLASS.

This instrument consists of a glass tube sealed at one end, and furnished with a brass cap at the other end, through which the air is admitted by a very small aperture. The tube is nearly filled with the following solution, which may be obtained of any apothecary or chemist:—

Camphor, 2½ drachams; nitrate of potash, 38 grains; muriate of ammonia, 38 grains; water, 9 drachams; rectified spirit, 11 drachams. Dissolve with heat. At the ordinary temperature of the atmosphere, plumose chrystals are formed.

On the approach of stormy weather, these crystals are often observed to occupy only the bottom of the tube, where they appear to be compressed into a compact mass; while on the other hand, during the fine weather, they assumed their plumose character, and extend a considerable way up the glass.—These results depend upon the condition of the air, but they are not considered to afford any indication that can be relied upon of the approaching state of the weather. When exposed to a very low temperature, the compound camphor liniment bottle affords the same appearance and indication as these storm glasses. —*Pharmaceutical Journal.*

General Science and Miscellany.

PROFESSOR MITCHELL ON BIBLICAL ASTRONOMY.

Professor Mitchell delivered another of his series of lectures on Biblical Astronomy, in the Hope Chapel, last evening. As was the case on former occasions, his audience was large, and he was listened to throughout with great attention. During the evening, he read a variety of extracts from the Book of Job, and commented upon them in his peculiarly eloquent style. In reference to the allusion to the foundations of the earth, the lecturer inquired where are its foundations—by whose power is it guided—who supports it? Who is it that keeps it steady in its career, and causes it to subserve the great objects for which it was designed? We know not—it is impossible for us to answer. If we ascribe it to the power of gravity—what is it? It is the expression of the will of God. We can't go beyond that, and having reached a certain limit, we find that the human mind can't go beyond it. Again, "Hast thou commanded the morning since thy days, and caused the day-spring to know its place," &c. Hast thou so constituted the earth that it shall revolve for ever and ever with perfect uniformity, and cause the day to know its place with absolute certainty? Here he said, we have a remarkable allusion to the most wonderful facts connected with the history of the world. If the axis of the earth was not perfectly stable, then the dayspring from on high could not know its place, nor would there be any certainty in regard to the rising and setting of the sun, nor any uniformity in the seasons. Of the millions of axis which may be drawn through the earth, there is but one of them all on which it can rotate, so that it will preserve its position and cause that uniformity which we possess. So uniform is that rotation, that for two thousand years, it has not varied the one hundredth part of a second. But is it necessary that this motion should be uniform? He should say no. There is no planet which moves with perfect uniformity, but in the motion of the earth on its axis, there is absolutely no change. Suppose that in launching the earth into space, it had been established as a law that it would be perpetually losing a small amount of its velocity in its rotations, what would be the result? It would lose from time to time, and in the end, its destruction with that of all life, on its surface would be the consequence. If on the other hand the velocity of its rotation was increased, what would be the result? The whole mass would disintegrate and portions be thrown off at the equator. But God has given us a guarantee that these changes will not take place—he has guaranteed as on the right as well as on the left.—*N. Y. Paper.*

The Rolling Stone Gathers No Moss.—A very sensible little item against the universal all-pervading disposition of American farmers to migrate—a disease that is often destructive to life, very often to health, more often to comfort and happiness, and still more often to a systematic course of improvement, by which the "old homestead," that is abandoned on account of its unproductiveness, would become fertile again, and yield a greater profit than some of the rich lands of the west.

VENTILATION.

We copy from the *Globe* a brief outline of a Lecture on the important subject of *Ventilation*, delivered at the Mechanic's Institute of this city, on Friday the 30th ult., by H. Ruttan, Esq.:—

There was an audience of upwards of 100 persons, including a good many ladies. Mr. R. began by describing what pure air is, and then proceeded to show the manifold causes of impure air, which consists not only in that expelled from our lungs in breathing, but is generated also by exhalations from every animal or vegetable matter, decayed or otherwise, which is found in our houses, streets or fields. But if it is said we must take the air as it comes to us, that is sheer nonsense, for the same thing might be said regarding water. There is pure and impure of both, and as no sane person would drink of filthy water merely because it was the first at hand, but would look for clean, so it is as insane for people to take no heed as to the qualities of the air they breathe. The Lecturer after reading extracts from Liebig and other authors, showing how impure air was generated and what were its pernicious effects if breathed, proceeded to speak of the different means which have been employed to disperse this impure air, and to supply it pure, in other words, ventilation. He blamed architects for their total inattention to this most important part of their duty. As medical men are required to have a knowledge of the anatomy of the human body, so ought architects with respect to the anatomy of houses; but in this so-called utilitarian age there are very few houses built that can be inhabited with comfort. Architecture has been retrograding these last 3000 years. Many of our Canadian churches are proofs of it. Large sums are expended on fine Gothic churches, with roofs 50 or 60 feet high, and which can never be made comfortable (not to speak of the minor inconveniences of not hearing the preacher), while by having a flat and at the same time a lower ceiling with a proper system of ventilation, these defects would be remedied and less debt burden the congregations. Then in dwelling houses, bed rooms are so placed and furnished, that it is wonderful how we escape the bad effects with so much impunity. They are put at the top of the building towards which all the impure heated air from kitchens and sitting rooms ascend. The carpets and curtains, and such like furniture, collect noxious particles of all sorts that do their share in vitiating the air. Bed rooms ought to be as bare as possible, and especially sick bedrooms. Indeed, carpets should be used in no room in any house. They are uncleanly, and consequently unhealthy. Kitchens ought not to be under sitting or bedrooms, but in out buildings; neither ought vegetable or animal food to be kept in any cellar under the house. By his plan the inconvenience of the present method is obviated, which by admitting the current from below, diffuses air little if any different from that which it expels. He did not enter into the details of his new plan, nor show how the natural direction of heated air upwards was to be overcome, giving as a reason that it would be too dry for a mixed audience. The lecturer was much applauded during the reading of his very interesting lecture, which occupied upwards of an hour.

Golden Rules of Life.—All the air and the exercise in the universe, and the most generous and liberal table, but poorly suffice to maintain human stamina, if we neglect their co-operatives —namely, the obedience to the laws of abstinence, and those of ordinary gratification. We rise with a head-ache, and we set about puzzling ourselves to find out the cause. We then recollect that we had a hard day's fag, or that we feasted over bounteously, or that we stayed up very late; at all events we are inclined to find out the fault, and then we accuse ourselves of folly for falling into it. Let any one individual review his past life, how instantaneously the blush will cover his cheek when he thinks of the egregious errors he has unknowingly committed—say unknowingly, because it never occurred to him that they were errors, until the effects followed that betrayed the cause. All our sickness and ailments mainly depend upon ourselves. There are thousands who practise errors day after day, and whose pervading thought is, that every thing which is agreeable and pleasant cannot be hurtful. The slothful man loves his bed, the toper his drink, because it throws him into an exhilarative and exquisite mood; the gourmand makes his stomach his god; and the sensualist thinks his delights imperishable. So we go on, and at last we stumble and break down. We then begin to reflect, and the truth stares us right in the face how much we are to blame.

Farming Scenes in the West.—About eight years ago a Dutchman, whose only English was a good-natured "yes" to every possible question, got employment here as a stable-man. His wages, six dollars and board; that was thirtysix dollars in six months, for not one cent did he spend. He washed his own shirt and stockings, mended and patched his own breeches, paid for his tobacco by odd jobs, and laid by his wages.—The next six months, being now able to talk good English, he obtained eight dollars a month, and at the end of six more had forty-eight dollars. The second year, by varying his employment—sawing wood in the winter, working for the corporation in the summer, and making gardens in the spring —he laid by a hundred dollars; and the next year one hundred and fifto-five dollars. With this he bought 80 acres of land. It was as wild as when the deer fled over it and the Indians pursued him. How should he get a living while clearing it.—Thus he did it; he hires a man to clear and fence ten acres; he himself remains in town to earn the money to pay for the clearing. Behold him already risen a degree—he is an employer! In two years' time he has twenty acres well cleared, a log house and money enough to buy stock and tools. He now rises another step in the world, for he gets married, and with his amply broad-faced good natured wife, he gives up the town, and is now a regular farmer. In Germany he owned nothing, and never could; his wages were nominal, his diet chiefly vegetables, and his prospect was, that he would be obliged to labor as a menial for life barely earning a subsistance, and not leaving enough to bury him. In five years he has become the owner in fee simple of a good farm, with comfortable fixtures, a prospect of rural wealth, an independent life, and, by the blessing of heaven and his wife, of an endless posterity. Two words tell the story —industry and economy. These two words will make any man rich in the West.—*Indiana Farmer.*

Dutch Women.—Coleman, in his "European Life and Manners," gives the following description of the Dutch women:

"I think some of them the fairest and handsomest creatures I ever looked upon, and made of the finest unmixed porcelain clay. Before I left England, I thought the English women the finest I had ever seen —I now consider them as belonging to the colored races. The Dutch women much exceed them. Take the fairest rose that was ever plucked, with the glittering dewdrops hanging among its petals; take the fairest peach that ever hung upon the tree, with its charming blending tints of red and white, and they are eclipsed by the transparency and beauty of complexion of the fairest of the Dutch women, as I saw them at Broeck and Saardam. If their minds are as fair, and their manners as winning as their faces, then I can easily understand the history of Adam's fall. It was impossible, poor fellow, that he should resist. Then their costume is so pretty and elegant. A sort of thin gold helmet fitting close to the head, leaving enough of the hair to part gracefully over the brows; a thin, but wide band of highly wrought and burnished gold, with splendid ear-drops of gold or of diamonds set in gold, with a beautiful cap of the finest Brussels lace, covering, but not concealing, the whole head, and all the rest of the dress of vestal purity; white, tasteful, transparent, with short coats, shoes as bright as mirrors, and stockings of the purest white, and fitting the ankle as if they were knit upon the limb; with no drabbling train to sweep the pavement, and no oversized shawl, and loose and ill-fitting sleeves and skirts, hanging about the person like clothes upon an old tree on a washing day, and you'll have some faint notion of what one of these creatures is."

The Sea.—In the wide sphere of bright creation, there exists naught that hath for man so deep a "tone" of meaning as the fathomless, eternal sea—that resplendent shield, guarding the verdant universe. It hath smiles for him in his gladness, when the glorious sun, dancing over the tameless waves, lights them into beauty; it hath a garb of mourning for his sorrow, when it reflects the dark cloud sailing over it, and rocks the shadow within its bosom; it hath notes of laughter for his hour of wassail and of song, when its free bright waters leap to shore with a sound of bounding mirth; and it hath a trumpet for the victor, when it raises its voice amidst the storm, and sends its billows gleaming on high, like mighty standards! Thou hast within thy depths, O sea! gems to deck thebrow of the beautiful, wealth to lure the aspirations of the avaricious, and groves of the rich red coral to haunt the poet's dream. Thou hast, too, thy treasures amongst the dead, to fill the soul of the mourner. Thou art, O sea! "the deep heart of earth, imaging its beauties, thoughts, and passions."

Revenge.—When the mind is in contemplation of revenge, all its thoughts must surely be tortured with the alternate pangs of rancour, envy, hatred, and indignation; and they who profess a sweet in the enjoyment of it, certainly never felt the consummate bliss of reconciliation; at such an instant the false ideas we received unravel, and the shyness, the distrust, the secret scorns, and all the base satisfactions men had in each other's faults and misfortunes, are dispelled, and their souls appear in their native whiteness, without the least streak of that malice or distaste which sullied them: and perhaps those very actions, which (when we looked at them in the oblique glance with which hatred doth always see things) were horrid and odious, when observed with honest and open eyes, are beautious and ornamental.

Laziness grows on people; it begins in cobwebs, and ends in iron chains. The more business a man has to do the more he is able to accomplish; for he learns to economise his time.

ELECTRO MAGNETISM, AS A MOTIVE POWER.

Professor Page, in the lectures which he is now delivering before the Smithsonian Institute, states that there is no longer any doubt of the application of this power as a substitute for steam. He exhibited the most imposing experiments ever witnessed in this branch of science. An immense bar of iron, weighing 160 pounds, was made to spring up by magnetic action, and move rapidly up and down, dancing like a feather in the air, without any visible support. The force operating upon this bar, he stated to average 300 pounds through ten inches of its motion. He said he could raise this bar 100 feet as readily as through ten inches, and he expected no difficulty in doing the same with a bar weighing one ton, or a hundred tons. He could make a pile driver, or a forge hammer, with great simplicity, and could make an engine with a stroke of six, twelve, twenty, or any number of feet.

The most beautiful experiment we ever witnessed, was the loud sound and brilliant flash from the galvanic spark, when produced in a certain point in his great magnet. Each snap was as loud as a pistol, and when he produced the same spark at a little distance from this point, it made no noise at all. This recent discovery he stated to have a practical bearing upon the construction of an electro-magnetic engine. Truly, a great power is here; and where is the limit to it?

He then exhibited his engine, of between four and five horse power, operated by a battery, contained within a space of three cubic feet. It looked very unlike a magnetic machine. It was a reciprocating engine of two feet stroke, and the whole engine and battery weighed about one ton. When the power was thrown on by the motion of a lever, the engine started off magnificently, making 114 strokes per minute; though, when it drove a circular saw ten inches in diameter, sawing up boards an inch and a quarter thick, into laths, the engine made but about eighty strokes per minnte. There was a great anxiety on the part of the spectators to obtain specimens of these laths, to preserve as trophies of this great mechanical triumph.

The force operating upon the magnetic cylinder throughout the whole motion of two feet, was stated to be 600 pounds, when the engine was moving very slowly, but Professor P. had not been able to ascertain what the force was when the engine was running at a working speed though it was considerably less. The most important and interesting point, however, is the expense of the power.

Professor Page stated that he had reduced the cost so far, that it was less than steam under many and most conditions, though not so low as the cheapest steam engines. With all the imperfections of the engine, the consumption of three pounds of zink per day, would produce one horse power. The larger the engine, (contrary to what has been known before,) the greater the economy. He was himself surprised at the result. There were yet practical difficulties to be overcome; the battery had yet to be improved; and it remained yet to try the experiment on a grander scale, to make a power of 100 horses or more.

Truly, the age is fraught with wonders, and we can only now look forward with certainty to the time when coal will be put to better uses than to burn, scald and destroy.—*National Intelligencer.*

IMPORTANT DISCOVERY—LARD RENDERED FLUID BY MIXING WITH ROSIN.

Professor Olmstead of New Haven has lately made the important discovery, that, by adding one pound of powdered rosin to three pounds of Lard, well stirred together the mass becomes semi-fluid at 72° F., and on being melted, which it does at 90° notwithstanding if melted alone the rosin requires 300° and the lard 97° of heat, the compound will remain transparent and limpid at that temperature. As it cools, a pellicle begins to form on the surface at 87°; and at 76°, it remains a dense semi-fluid.

The discovery of the above named fact will be of great importance to those who use lard lamps, as the lard is rendered more fluid by the rosin, and the power of illumination increased two fifths; yet, after two hours' burning, it looses its brilliancy on account of the wick becoming clogged. This will not be an important objection in families, while in point of economy the gain will be considerable; for lard is worth three or four times as much as rosin.

To machinists, this discovery is very important, as it enables them to make use of lard, instead of oil, which is not only a saving in cost, but what is of far more importance, the addition of the rosin completely neutralises the quality of acidity in the lard, which corrodes metals, particularly brass and copper, to such a degree that it is unfit to apply to anything not in constant use. Professor Olmsted says, a thin coating of the compound laid upon a grate or sheet-iron stove with a brush, as thin as possible, will keep it free from rust all summer, although stored in a damp place.

To soap makers, the discovery is also important. If one pound of the compound is added to two pounds of common Windsor soap, the quality is greatly improved, and the tendency that soap has to grow rancid, when in use or kept moist, is thus entirely prevented. A shaving cream of an excellent quality, may be made by taking a cake of good shaving soap and steaming it soft in a close cup, and mixing half its weight with the compound, and working it well together; adding a little oil of almonds or any other agreeable flavor.

The same compound applied to boots and shoes renders them nearly impervious to water, and if applied to the soles, will not soil the floor. The uppers will be soft and pliable, and not prevented from receiving a blacking polish.

For oiling carriages, the mixture of lard and

rosin will be valuable; and when wanted for heavy wheels, a proper consistency may be given to it by adding wheat flour, or if greatly preferred, black lead.

No doubt the soap paste above described would be a good lubrication for carriage wheels. We hope this discovery will increase the consumption of lard, and thereby give an improved market to the farmer, and thus enable him to turn land into lard, and lard into light, and in the meantime enlighten his mind and improve his condition.—*Am. Agriculturist.*

To Prevent Fermentation in Cider, Wine or Beer.—Add a small quantity of sulphite of lime; or bruise mustard seed, 14 ounces to 1 ounce of cloves, and add to the liquid when first put into the cask; or a small portion of each may be added. The article is sulph-*ite* and not sulph-*ate* of lime. It is quite innocuous in any quantity.

Arrack.—This is a spirituous liquor produced from distillation of palm wine, and also from a fermented infusion of rice. It is a drink much used in the East Indies, among some of the semi-barbarious nations. Opposed as we are to all intoxication beverages, we cannot recommend its introduction into this country, unless it were upon the some principle we would tolerate wine, cider, and beer, as less likely to produce drunkenness than whiskey. A great fire is sometimes checked by a smaller one.

New Steering Wheel.—This invention has been patented by Capt. Fayrer, R. N., for England, Scotland, and France. We have received a copy of the drawings, necessary for showing the construction of the apparatus, and will be happy to shew it to parties who may be desirous of putting it into their vessels. We should think it of peculiar benefit to vessels, which running the rapids of theSt. Lawrence require great nicety and great power at the wheel.—*Montreal Gazette.*

Making Brine—*For the use of Young Housekeepers.*—Dissolve four pounds of good salt in each gallon of water. Add a few handfuls of small lumps of rock or coarse salt to each cwt. of meat, as you pack it, before putting on the brine. This will maintain its strength. If the pieces of meat are small and lean, they will absorb salt enough to be palatable, in three days. You may then take it out, and if the weather is cool, keep it hung in a dry room, or pack it dry in coarse salt.

Housewife's Cream.—Take half a pint of good cream, a quarter of a pint of white wine, a teacupful of pounded white sugar, and the rind and juice of one lemon. Put all into a large basin, and whisk till it becomes quite thick: then put into glasses, and let them remain in a cool place till required [This cream is better if made the day before it is wanted, and it will keep good for several days, if the weather is not too warm.]

Rice Fritters.—Slice the rind of a lemon, and boil it in milk, with sugar enough to sweeten it and a cup of rice. When the rice is quite soft, take it out; beat up the rice with a glass of brandy, shape it into fritters, brush them with yolks of eggs, cover them with bread crumbs, fry them in butter, and serve them up with lemon juice squeezed over them.

Rice Balls.—Pour upon half a pound of rice three pints of boiling milk, and boil it with a little cinnamon, sugar and lemon peel, until it is quite tender; allow it to remain until it is cold, and then make it into balls. Beat up two eggs, roll the balls in it, and afterwards in grated bread crumbs; fry them in lard drain them on a piece of paper, and serve them up with sifted sugar.

To Burnish Britannia Ware.—In burnishing Britannia ware, rub the surface gently, in the first place, with a woolen cloth, dipped in sweet oil; then wash in tepid suds, rub with soft leather and whiting. Articles burnished in this way retain their lustre till the last, if carefully used.

Substitute for Soap.—A late French author recommends potatoes, three fourths boiled, as a substitute for soap in washing hands. The use of this prevents chapping in cold weather, and retains the skin soft and healthy.

Chemical Facts.—Soils may contain silica and alumina; a plant may contain silica, but no alumina. Animals contain neither silica nor alumina.

Trenching Old Orchards.—If you have any neglected old trees in your orchards fork or trench up the earth all around their trunks for a distance of four or five feet, and give to each tree at least a bushel of compost, made of equal parts of stable manure and leaf mould or swamp muck. And at the top of this, spread half a peck, to each tree, of charcoal dust, wood ashes, and oyster-shell lime.—*American Agriculturist.*

Specimens of beautiful black, white and variegated Marble have been discovered at Five Islands, Nova Scotia, which is said to be superior to Italian. A sample has been sent to England by the Hon. Mr. Howe, who recently set out as a delegate from Nova Scotia on the railway question.—*Morning Chronicle.*

Industrial Exhibition.—We have been requested to mention—and we have pleasure in doing so, for we think the idea is a good one—that the "Executive Committee" have determined, provided the suggestion meet with the approval of the members of the Canadian "Fourth Estate," to send to the Grand Industrial Exhibition in London, a handsomely bound volume, composed of copies of every Newspaper in the Colony: and, with this view, they have to request that the proprietors will forward to the Secretary of the Committee, John Leeming, Esq., the first copy of each Journal, issued for the year 1851. Now, gentlemen, mend your pens, sharpen your cissors!—*Montr Herald.*

Editor's Notices, &c.

CANADA; PAST, PRESENT AND FUTURE.
By W. H. SMITH, author of the "*Canadian Gazetteer.*"
Toronto: Thomas Maclear 45 Yonge-street.

When we call to mind the fact, how little is really known of the condition and capabilities of Canada, not only in the mother Country, but also to a large extent among ourselves, we are ready to welcome any guide that is of a trustworthy character. The people of England commonly associate six or eight months of the Canadian year with biting frosts and overwhelming snows. Few understand the difference which obtains in climate, soils, and their productions, as one travels from East to West in these extensive regions; and fewer still, accustomed to the fogs and alternate freezing and thawing incident to the winters of the old country, can form any adequate conception of the clearness of our atmosphere, the brilliancy of our skies, the ease and facilities of travelling, during the severest portion of a Canadian winter.

And how little generally do those for example who inhabit the banks of the noble Ottawa, know of the inhabitants, soils and productions to be found in the rich valley of the Thames! One principal reason why we have so often advocated the annual publication, in an accessible form, of a condensed agricultural report, compiled from the reports of all the societies in the Province, is that the people of one part might be made acquainted with what is doing in another. As the country becomes more thickly settled, and Education and Enterprise arouse the dormant powers of the mind, such knowledge will be eagerly sought and properly appreciated.

The publication, whose title we have placed at the head of this article, judging from the first part that is now before us; seems admirably adapted to supply a desideratum which has long been felt in our Colonial literature. The author has already earned a reputation in this particular department, by his useful Gazetteer, published a few years ago; and which has been well received by the public. The present work, however, differs materially from that publication, not only in form, but more particularly in the extent and completeness of its information, The first part contains a neatly engraved map of the Counties of Essex, Kent and Lambton, and 112 octavo pages in a clear, bold type; each part will contain a map, forming when the work is completed an accurate delineation upon a sufficiently large scale, of the whole of Upper Canada. In the part before us, we have a copious account of the counties above mentioned, together with Middlesex and a portion of Oxford. The date of settlement of the several townships, character of the soil, value of land, population returns, state of the industrial arts and manufacturing capabilities; with an amount of general statistical information, all so clearly set forth as to give the reader a correct and distinct idea of the subject. In works of this sort the correctness of the details is the most important and essential quality, and in order to ensure this, Mr. Smith is again visiting in person, every portion of the Province; a fact which cannot fail to strengthen the confidence of the public in the trustworthiness of his statements. A judicious use is made of Government and Custom House returns and the reports of public bodies, not omitting the very accurate and important information, which is well known to be contained in our Geological Surveys; but although the writer very properly, we might say necessarily, has recourse to these authentic sources of information, we think it only bare justice to state, that the work is not a mere compilation; but by far the larger portion, judging from the manner in which the subject is treated in the first number, will consist of original composition.

We have no space for extracts, and, in fact, no adequate notion of the work, as a whole, could be formed from selections that would come within reasonable bounds. We strongly recommend our readers to inspect it for themselves. The most important secular knowledge is that which relates to the country of one's birth or adoption. A few well selected books of high character, on subjects with which it is essential that every good and intelligent citizen should be conversant, are worth a whole library of trash; in fact we should regard the possession of the latter as among the greatest misfortunes with which any family could be afflicted.—We hope therefore for the good of our country, that the present work will be extensively circulated, not only in Canada, but in the British Isles, where full and correct information is so much needed; that people may learn what this country really is, and what industry, intelligence and integrity, with God's blessing are capable of making it through its future developments.

We have only to observe further, that the work is published in numbers at 1s. 3d. each, and in parts of double size at 2s. 6d.: each part will be accompanied by a map and about ten parts will complete the whole. We heartily wish both the author and publisher, that success, which their labor and enterprise ought not to fail of securing.

A PLAN OF SETTLEMENT AND COLONIZATION ADAPTED TO ALL THE BRITISH NORTH AMERICAN PROVINCES.—BY JAMES FITZGERALD, ESQ.

Just as we were going to press a Pamphlet bearing the above title has been put into our hands. The author a resident of this city, has had an experience of nearly a quarter of a century in Canada; and from the interest which he manifests in his subject, his opinions and suggestions are fairly entitled to a respectful consideration. The work consists of a series of letters addressed to a friend in Ireland, detailing the author's views on a system of Colonization, adapted alike to the wants of these Provinces and the mother country. It also includes several letters addressed by the author, at different times, to the Governor General, the Commissioner of Crown Lands, and the office bearers of some of the Agricultural Societies. As the subject of Colonization and the beneficial occupation of our wild lands is of paramount importance to the best interest of the country, we doubt not but this pamphlet will meet with an extensive reading. We may hereafter revert to it more at large. It may be procured of the booksellers in Toronto, and we presume, in other places; price, half-a-dollar.

RECEIVED. The 12th number of the *Farmer's Guide*, completing the first volume, including Professor Norton's appendix to Spring.

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